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THE Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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No. 1

WHEAT NEEDS OF THE WORLD¹

ALONZO TAYLOR

U. S. Food Administration and U. S. War Export Board

One of the most impressive results of the war, almost as impressive as the destruction of life, is the decrease of production. War carries with it infallibly diminution of the total producing forces of the nation at war. Production in industry, art, science, agriculture, in every direction of human endeavor, is reduced as the direct result of war. This is because war deflects energy and brains into nonproductive channels. Whenever brains and energy are deflected from productive into nonproductive channels, there is not only less work, but there is also greater liability to undergo loss; in other words, the actual diminution in production is greater through the operation of natural forces in war time, because the defensive powers of the State are reduced. That is the reason why crop failures, destruction by parasites, and all accidents to crops are more apt to occur in war time and to inflict greater results than otherwise. The defensive powers are reduced, and thus we find in connection with war not only a diminution in agriculture but also a more than customary degree of loss through extraneous forces. The loss in crops in Europe this year is greater than ever before. They have had severe winter killings, insufficient labor, not enough work animals to till the soil, the seed was not selected; all of these factors make for a lower yield. This winter killing extended to Germany and, in general, all over Europe, with the exception of Poland and Roumania.

It is clear that the wheat production of the allies will probably not be in excess of two-thirds of a normal crop, 400,000,000 bushels, leaving

¹An address given in the Auditorium of the National Museum, Washington, August 28, 1917. Reprinted with the permission of the United States Food Administration.

our allies under the necessity of importing almost 600,000,000. To meet this situation we have a short wheat crop in the United States and in Canada. The United States and Canada will probably produce 800,000,000 bushels, from which we should have an exportable balance of possibly 200,000,000 bushels. The 400,000,000 bushels more of wheat that our allies used to secure from the rest of the world they will not secure. Argentine's last wheat crop was a relative failure and an embargo has been placed on export. There is a surplus in India of about 75,000,000 or 100,000,000 bushels; in Australia of 300,000,000. This is again out of the question from the standpoint of transportation. It is almost certain sinking to bring grain through the Suez Canal and there are not enough ships to transport it around Cape Horn. Our allies practically face the situation of importing 550,000,000 to 600,000,000 bushels of wheat from North America if they are to get it, since if they can not obtain it they will have to subsist in part upon other cereals. We will have available this year, outside of the average normal consumption, only 200,000,000 bushels. This is the situation stated statistically, using rounded figures.

We shall have this year about 5,250,000,000 bushels of cereals, of which only 660,000,000 are wheat. Yet all that is talked about is *wheat*. What is there about *wheat* that makes it so wonderful and so mystical? Why does everyone's mind fix itself upon wheat? That is due to a number of reasons that it is necessary for everyone to understand.

There are three grains that will make bread, in the ordinary sense of the word, wheat, rye, and barley. When mixed with water they can be kneaded; under the influence of yeast they can be raised and maintain a continuity of structure that will mold; when baked they form a loaf which will keep and can be transported, and is therefore a most convenient form in which cereals may be used. These three grains alone will make bread as we know it.

As one follows each nation's developments upward in an economic sense, one notes that barley is first eaten; as the nation becomes more prosperous, barley is thrown to one side and rye is used; and finally rye is cast aside and wheat is the main subsistence. This has been the history of most Aryan peoples.

The United Kingdom depends almost entirely upon wheat for its bread. Italy consumes wheat bread, but bread is not so prominent as elsewhere. Rye is universally used in Russia, and barley is still em-

ployed as a bread grain. The reason why wheat supersedes rye and barley is because the bread is whiter, of a finer texture, and has unquestionably a better taste. The flour has somewhat better keeping qualities, and wheat flour lends itself to the making of pastries and fancy articles as no other flour does.

When a nation can no longer obtain wheat, it returns first to rye flour and then to barley. To-day the flour for war bread in Germany is 45 per cent barley, 55 per cent wheat and rye.

As to the superior nutritive value of wheat flour, this is entirely exaggerated. There are no differences when used in a mixed diet; one is just as good as another. Wheat is not superior to rye or barley; they are not superior to oats or rice or corn, if they are used in a mixed diet.

Now, if it be true that all of these cereals are of equal value in a mixed diet, why is it that we are appealing to the American people to send more than our customary amount of wheat to the allies? If they need a billion bushels of these cereals and they have raised approximately 400,000,000 bushels and can import from us only 200,000,000 bushels of wheat, why should they not take the other 400,000,000 bushels in other cereals and leave us our normal wheat ration? Why are we appealing to our people to cut down wheat and substitute supplementary cereals?

A certain amount of experimentation is possible with the diet of a normal healthy person. But the individual who is harassed and overworked is not in a situation to tolerate any marked deviation from the normal diet. In this situation are the allies in Europe to-day.

A question of trade also enters the problem. In America at least 55 per cent bake the bread in the household and only 45 per cent buy it from the baker. In Europe nearly everyone purchases bread from the baker. Domestic baking is economically wasteful. It is, therefore, absolutely necessary to adopt one or two positions; either the allies are to be taught a totally new use of cereals, not in the form of bread, or they must be given enough bread grains to build a loaf.

Anyone who travels through this country knows what a task it would be to get the people to live on rice. Go to the hotels in Washington and see what sort of a mess they make of corn bread. Then you will feel that it is not an easy experiment to teach the peoples of the allies how to make corn bread. If hotels here can not succeed, how can we expect the individual in Europe to succeed?

In England there is a large use of rice. In England, Scotland, and Ireland there is a heavy use of oatmeal. The people of the United Kingdom will take corn also. The same thing is true of Italy. Corn in the form of polenta is used in Italy and rice is also a frequent article of the diet. Wheat flour, although used for bread, is not entirely depended upon by the women of Italy.

The women of France are absolutely dependent upon wheat bread, which forms 52 per cent of the total food of the French people (the present ration is 18 ounces per day), a larger percentage than with any other nation of the world. They eat no rice, no corn; they know nothing of oatmeal and rye, and of barley have little knowledge. The problem rises with France. If we were to estimate the wheat the allies have raised, add to it our 200,000,000 bushels, and then send the balance of their need in other cereals, there would not be enough wheat flour to go around. You can not make good bread if you have as low an amount as 60 per cent of wheat flour with 40 per cent of other cereals. From a practical point of view, bakers fail to make bread under these circumstances. You can get along on 75 and 25. Unless we wish to impose upon the French women the burden of entirely recasting their households, it is up to us to get more wheat to the allies, and especially to France. I want, if possible, to fix in your minds the actual situation of the French woman in her home.

My words are not powerful enough to do even scanty justice to the most heroic figure in the modern world, and of ages past—the woman of France. Every French home has a man at the front, incapacitated by wounds or suffering from tuberculosis. Many houses have two of these and some three or four.

During the years from 1909 to 1913 there were rejected from the annual recruitings of French military service 25 per cent of the fresh recruits by reason of tuberculosis. These numbered during the five years about 900,000 men, who were rejected from the French Army for peacetime drill on account of being tubercular. Beginning about one and one-half years ago, France was compelled to send these men to the front, and the majority of them have succumbed to a recrudescence of tuberculosis. Of the healthy men who are not engaged in the military service in France, practically all are engaged either in transportation or in the manufacture of munitions, leaving the agriculture absolutely to the women. Not only this, but they have stepped into the place of work animals; you can go into any section of France to-day and see women

of magnificent, noble womanhood hitched to the plow and cultivating the soil. All of the agriculture rests upon their shoulders. The home, always an extremely efficient home, maintains a few old men, the wounded, and the tubercular. Uncomplaining, with high devotion, with an attitude that amounts almost to religious exaltation, the woman of France bears the burden.

A few days ago, in describing the French prisoners in German prison camps, I pointed out, what I had seen in my own personal observation, that beginning with the first months of the war the French women sent parcels of food to their men amounting to about 60 per cent of their total food. There was no organization; the French woman as a matter of course sent this food parcel to her husband, father, son, brother, or sweetheart in the German prison-of-war camps. When food became scarcer, the parcels became smaller and the French prisoners were compelled to subsist more largely upon the German food which is insufficient to maintain normal nutrition. To our positive knowledge this necessity has become a serious menace because so many of the men who were in the prison camps were tubercular. Of course, insufficient diet would only accelerate the ravages of the disease and so arrangements are under way to supplement this diet by food from the United States. But wherever we went we did not hear any complaint from France; there has never been any complaint. There never will be any complaint. They do not complain. They only go without, and there would never be any knowledge on our part if it were not for their official representatives, who, feeling themselves so close to us that we seem to be almost one with them, can mention this state of affairs simply as they are; but complain, no! We will never hear that; it is not in their nature.

Now, conditions being as they are, does it lie within the heart of the American people to preserve and hold to every convenience of our life at the expense of adding an additional burden to the womanhood of France? This is the exact question that is involved in our substitution of other cereals in place of wheat.

If the people of the North will consume cereals as they have always done in the South (and they fought a very good battle for five years, 50 years ago, on their mixed diet), we can send an additional 150,000,000 bushels of wheat to the allies, principally to France. In the North we consume about 12 ounces of cereal per day, 10 in the form of wheat flour and 2 of rye, rice, barley, oats, and corn. In the South they consume about 7 ounces of wheat flour and 6 ounces of other cereals. If we

can induce the people of the North to cut down the consumption of wheat to anything approaching that of the South, we can realize 150,000,000 bushels of wheat. This will enable the allies to mix other cereals with the wheat in such proportions that they can make them hold together as bread. On a three-quarter basis of wheat and one-quarter of other cereals, they will be able to make perfectly good bread, not as good as whole wheat bread, but then *c'est la guerre*. If the amount of wheat falls very appreciably below the average figure, it will not be possible to give them freedom in the making of bread.

This still does not put us in their class, because we have more freedom in the choice of supplementary articles of diet. We can accomplish saving of wheat by not having bread on certain days or for certain meals. As a matter of fact, all we ask in the substitution of cereals can be reached with one meal in the day a wheatless meal. If one meal per day sees other cereals used to the exclusion of wheat, this problem is solved. If it is tried for a short time, it is found to be an exceedingly small thing. It amounts to a slight reduction in what is, at the best, a convenience; but it means an enormous increment and assistance to the womanhood of France.

Now, this is in simple terms what we need and what will have to be done if we are to do our part, what is up to us to do to help bring the war to a successful conclusion. Previous wars have always been discussed largely in terms of units of men and not in terms of units of animals or units of food. That is why the German peasant protests against sending his swine except at a very high price, because he has not been accustomed to so doing; he has always expected to send his children, but not his live stock.

Do not be confused by peace talk and other rumors. Those of us who have been in Germany during the war know that peace at this time is not the view of the ruling classes of Germany, who stand for annexation east and west. Although there are many Germans who do not think thusly, they can make no protest. Germany is not going to starve; she can not be starved out. There is not going to be a revolution in Germany, not so long as there is war. This war will end in no such way.

The women of France must be enabled to hold up the morale of the French soldier until next spring. The morale of the home decides the morale of the soldier in the fighting line. It does no good to feed the soldier if you starve his family. It is, therefore, the first duty of the Americans to make the pressure back of the line at the home, and above

all else on the women, as light as possible. It can not be made small, but we can reduce it greatly. We can do this by giving them the greatest possible freedom in their food supply, and of this wheat is the chief factor. Others are sugar and fat.

Another thing, we must be able to take over part of the French line next spring, because there is a limit even to the strength of the fighting forces of France. Good judges do not feel that France will be able to maintain her present offensive throughout another calendar year, and it is up to the United States to take our place there. We must make the path of the women of France as easy as possible during the next eight months and at the end of that time take the place of the Frenchmen in the line for miles and miles. If we expect to win this war and expect to stand in history as we should stand, we will have to do these two things. It is somewhat of an invidious comparison to make, but it is undoubtedly true that the morale of an entire nation is represented by the morale of the women. It is also true that the morale of the French woman is the highest in the world, because she has suffered most. The women of England and Italy will in another year be in the same position as in France, if the war continues long.

Last September I was visiting a prison-of-war hospital in England. It contained a thousand wounded Germans, officers and privates. Those who are familiar with prison-of-war camps and hospitals know that for about 48 hours after a soldier is wounded he will leak information if approached in his own language. There were in this hospital nearly 200 officers, who had just been received at the hospital from one of the fierce artillery battles. In speaking to these officers, and to one in particular, I noticed that the only thing they were afraid of was that they should be accused of cowardice. This officer, with others and about 100 men, had been in a front line position underground. While the bombardment was going on they were in cellars. When the bombardment ceased, they knew that the barrage would be the next, and the Frenchmen would be advancing upon their own curtain. Before the Germans had time to raise the machine guns in place, a small party of Frenchmen had advanced far enough to throw a half dozen hand grenades into their cellar, and there was nothing for them to do but surrender. Of course, if they had had time to get their machine guns in position, they would have been able to repulse the French attacking party. The fact remains, said the officer, that the French soldier was the better fighter in connection with artillery fire. I remarked

that possibly he meant better than the English "Tommy." No, he said the French soldier was the best fighter in the world, barring none. He said that the Frenchmen have something no other soldier has.

As I left the hospital I fell to wondering what he could have meant and what should be drawn from what he had said. What is it that the Frenchman has that no other soldier has? One thing, there is a wonderful spirit of comradeship between officers and men that does not exist anywhere in the world except in France. We trust that our new National Army may be able to attain the same comradeship. But it is not that. One must go to Gard de Nord, which is now purely a military station. The women go with their men to the trains. There is no weeping; every eye is dry. Mothers, sisters, daughters, sweethearts, and wives put their men on the train almost, if one observes them casually, as nonchalant as if they were going to work, and they are. The train pulls out slowly and the women stand on the platform watching. There are no tears then. The men stand at the windows and on the outside platforms, looking back and straining their eyes for the last look. Then after the train has gone, the women return to their homes, their faces lighted with what is almost a holy and religious exaltation. This is what the soldier of France has that no other soldier in the world has—the woman of France.

Let us hope that our women will be able to catch the same spirit. If our women can cultivate the spirit of France, the war will be won, and its suffering will not be in vain. The spirit of France means the doing each day of the simple duties, the duties that make for efficiency and that make for the home, for the freedom of which our Nation has embarked upon this war. They, the women of France, are perfectly simple. From them has come the spirit that has enabled France to stand through three years of warfare, such as no nation probably at any time, ancient or modern, has ever withstood. The war will never rage within our borders, it must always be within the borders of France; and for that reason all consideration must be given to them, who have the war with them, physically as well as mentally, every moment day and night.

SOME RECENT MAGAZINE ARTICLES ON THE STANDARD OF LIVING

LORINDA PERRY

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The need of saving becomes urgent because of the mounting cost of living which has not been cancelled by corresponding increases in income and because of great national needs. Not only individual needs but important national demands impose upon the individual the responsibility of saving. Two articles on Thrift, by Professors Edward T. Devine and Robert Graham Taylor, which are well worth reading, appear in *The Survey* of the last year. Before the war, more and more, emphasis was being shifted from the necessity of individual saving to the necessity for maintaining an adequate standard of living, especially for working people. It was advocated that individual saving be replaced or at least supplemented by collective or coöperative saving as a more efficient form. The present emergency has, however, peculiarly placed the responsibility for saving back upon the individual, without lessening the necessity for coöperative forms of saving or minimizing the need for maintaining the standard of living. Professor Devine⁷ who has laid emphasis upon the maintenance of a standard of living by group saving thinks the old teaching in a modified form must again be vigorously preached. The need for individual saving arises because of the actual shortage of the means of subsistence due to lowered production and to the diversion of capital and labor from productive peace enterprises to important war activities. This need will continue after the war because of the destruction of enormous amounts of capital which must be replaced. The necessity for thrift is thus immediate, great, and continuous. Professor Devine considers the nature of Thrift and Saving not deprivation, but more rational expenditure, not solely or even principally doing without things. For at any time spending involves doing without things in order to obtain other things. "Fundamentally they (saving and thrift) mean a wise and disciplined judgment as to expenditures."⁸ They demand character and a scale of values. The careful saver spends every dollar on a plan carefully worked out in advance, giving due considera-

⁷ Devine, Edward T.: Thrift and Saving. *Survey*, vol. 38, pp. 400-403.

⁸ *Ibid.*, p. 400.

tion to future as well as present needs, substituting deliberate choice for impulsive expenditures.

The time to begin to save is now. Those who should save are those who can afford to save, whose means of subsistence are in excess of needs—in other words, practically all of us. In saving, the following principles will be useful as a guide in choosing: “those forms of saving should be preferred which, if adopted generally, will tend to make prices lower, supplies more abundant, and release goods more freely for the vital national needs.”⁹ All forms of expenditure must be reconsidered from the point of view of rational expenditure with the purpose in view of purchasing “those things which, other things being equal, most economically supply elementary human needs, and for the rest those things which satisfy higher rather than lower, essential rather than passing, social rather than selfishly personal demands.”⁹

Professor Taylor in a paper,¹⁰ given at the hundred year anniversary of the opening of the first American Savings Bank in Philadelphia, discusses social forms of thrift. Thrift is not only an individual habit and virtue, it is also social. Thrift of the individual or of society may degenerate into “thrifless thrift,” overlooking the future for immediate wants (or vice versa), obtaining the welfare of the individual at the expense of the group. The advantage of group thrift arises because group thrift in many instances is more efficient and because of the necessity of protecting society from the “thrifless thrift” of individuals who may exploit themselves or others. Social thrift thus takes the form of laws such as those regulating the hours and conditions of employment of women and children, providing for compulsory schooling, mothers’ pensions, minimum wage laws, sanitary inspection of tenement houses and shops, pure food and drug acts, laws establishing postal savings banks, and the federal Children’s Bureau. It also takes the form of voluntary associations such as the American Association for the Prevention of Infant Mortality, the American Labor Legislation Association, and others.

Market conditions have received much of the blame for the high cost of living, especially for the increased cost of food. The last century has been characterized by rapid increase in urban population and in the territorial division and specialization of labor. The distance and the intermediaries between the producer and the consumer have increased greatly. The result has been maladjustment and consequent waste in the

⁹ Ibid., p. 402.

¹⁰ Taylor, Robert Graham: The Social Aspect of Thrift. *Survey*, v. 37, pp 83-1

distribution especially of food, which has added to its cost. The difference between the price which the producers of many goods, especially food, receive and the price which the consumer pays, gives rise to the belief that the middleman exacts a tribute from the price of goods for which he returns no adequate service. Some think the remedy is to bring about a more direct purchase of goods from the producer by the consumer.

Much of this belief may be traced to failure to understand the legitimate functions of the middleman. A clear conception of the market and of market organization is of value to the consumer as well as to the retailer or producer. Prof. L. D. H. Weld,¹¹ in analyzing what are usually called the functions of the middleman and which he prefers to call "marketing functions," shows the processes which must be performed in the present complex society in getting goods into the hands of the consumer from the producer. He classifies the services to be performed in the marketing processes as (1) assembling, (2) storing, (3) assuming risk, (4) financing, (5) rearranging, (6) selling, (7) transporting.

The need for assembling—the seeking out of sources of supply, the making of business connections by which commodities may be purchased, the study of market conditions—arises with the development of territorial division of labor and specialization. It is obvious that it is easier and more efficient for one middleman to bring the many producers and many retailers together than for each individual retailer to make his connections directly with innumerable producers.

Storing is the holding of stocks of goods at convenient points, at a convenient time. It requires expense for wholesale or storage fees, store space, interest on capital tied up in goods. Both the producer and the retailer may and do store goods, but the tendency is for both to shift this responsibility to the middleman. This, for instance, accounts for the increase in the number of small jobbing houses in small jobbing centers.

The risk assumed is of various kinds; risk of fluctuations in price which varies with the kind of goods handled, risk of destruction by fire, which is shifted usually to insurance companies, risk of deterioration in quality, as with fresh meats and fruits, which make necessary special facilities such as refrigerators, risk of changes in style, and financial risk involved in the collection of accounts.

The function of financing usually takes the form of granting credit,

¹¹ Weld, L. D. H.: Marketing Functions and Mercantile Organization. *Amer. Econ. Rev.*, v. 7, pp. 306-318.

and occurs all along the line—the retailer to the consumer, the jobber to the retailer, the manufacturer to the jobber. It is not at all unusual for the jobber to finance both the manufacturer and the retailer. This function again calls for considerable amount of capital.

Rearrangement consists of the sorting, grading, breaking up of large quantities into smaller units, packing, etc. Again this takes place all along the line from producer to consumer.

Selling is the most important and costly of the functions performed by the middleman. It consists both in creating demand for goods and in getting the goods into the hands of the purchaser. It may be done through personal salesmen, or advertising, or both.

Transportation of goods is largely taken over by other agencies such as the railroad. Yet the jobber and the retailer still perform part of this function with their delivery systems.

Greater functional specialization occurs in the marketing of farm products than in the marketing of manufactured goods—that is, on the whole, farm products pass through the hands of a greater number of middlemen. The fact that the producing unit is small on the average, and that farm products are usually unstandardized, perishable, seasonal, maturing at different times in different parts of the country, and sold through a larger number of retail establishments, accounts for the great need of specialization in their marketing.

The difficulties involved in the direct marketing of farm products and the real services performed by the middleman are illustrated in an article on "Marketing Farm Produce by Parcel Post and Express."¹² The advent of the parcel post was hailed as one important means of reducing the cost of living by facilitating direct purchase from producer to consumer and so eliminating the profits of the middleman. To determine the value of direct purchase, the department of agricultural economics of the University of Wisconsin obtained information from over 200 farmers in the state who had some time before advertised their willingness to sell directly to the consumer, and from consumers who had used this method of purchase. The answers showed general dissatisfaction with the system. From an analysis of these answers the writers have formulated certain conclusions as to the extent to which the direct sale of farm produce can reduce the cost of living under present conditions.

¹² Hubbard, B. H. and Hobson, Asher: Marketing Farm Produce by Parcel Post and Express. *Amer. Econ. Rev.*, v. 6, pp. 589-608.

The problems which the farmer has to face are concerned with obtaining customers, method of payments, cost of packing and transportation, and nature and quality of produce. The customer is concerned mostly with the quality of the product, and the convenience and cost of the service.

The producer must have easy access to the station, and as a rule should not sell to a market of more than 200 miles radius, because of the cost of transportation. The method of getting into communication with customers varies. Most success has been obtained by personal solicitation, although other plans such as correspondence, advertising, use of post-office lists, and industrial departments of express companies, may prove helpful. The fact that the farmer usually does not have much produce limits the use of advertising. Credit relations of some sort should be established between the producer and the consumer. Usually long distance marketing is done on a cash basis, so if no credit relations are established, the customer will have either to send the money with his order or to have the goods sent C. O. D. Both of these the customer is often unwilling to do as neither allows of inspecting goods before acceptance. The cost of transportation varies with the distance, weight, and kind of produce, being more expensive proportionately on small than on large packages. The cost of packing also varies with the size and weight of the article and tends to be much greater proportionately for small than for large articles. The produce must thus have high value as compared with bulk so as to stand the cost of transportation and of adequate packing. The supply must be dependable, more or less constant and not seasonal. (Poultry and dairy products best meet these requirements.) The commodities must be of good quality or at least of constant quality. The farmer's failure to appreciate this necessity is a great drawback. Goods should be graded or standardized and carefully packed so that the consumer can have some assurance as to the quality of the product he is buying. For many products the customer wants small orders quickly and often. The direct method of sale is usually slow. The use of the telephone is not always convenient, and orders are sent by mail, necessitating delay of several days. The cost of transportation and of packing militates against small orders. These costs, the authors suggest, can be minimized by consumers' "buying clubs"—which, on the other hand, add new burdens of administration for the consumer. Evidently, only a specialized producer, with inclination and ability to cater to retail trade, who will assume the responsibilities of the retailer and acquire business customs and methods can succeed in selling directly to the customer.

On the whole, the authors conclude "that the parcel post in its present stage of development has not fulfilled the expectations of the farmer as a selling agent, however useful it may be to him along other lines"; that it brings about no reduction in the cost of living for the consumer, on the other hand, it may even cause a slight increase, although this slight increase may be offset by the freshness of the article.

An account¹³ of the organization, purpose, and work of the bureau of marketing, established in 1913 under the South Carolina Department of Agriculture, Commerce, and Industries, is given in the monthly Review of the U. S. Bureau of Labor Statistics. The purpose of the bureau is to become a clearing house for information between buyers and sellers of agricultural commodities, to lessen the difficulties of trade in farm products by finding a market for goods which might otherwise be a total loss. The Bureau keeps two lists, of commodities offered for sale, and of commodities wanted. The first list contains the name and address of those offering commodities, the kind and amount offered, and the price asked. The second list contains the name and address of people wishing commodities, the kind and amount desired, and the price. These lists are corrected to date and published each week in state newspapers. The success of the plan depends very largely upon the degree of coöperation between the newspapers and the producers. A marketing bulletin giving this information is also published weekly and sent to about two hundred merchants and those who take commodities in large quantities. People may also be informed of the wants and offerings of the market by writing in to the bureau and learning the names and addresses of those who desire or are selling any particular commodities. Those having goods to sell and those wishing to buy them, can thus easily get into communication with each other. During the three and one-half years that the bureau had been in operation, only two complaints had been received and numerous expressions of approval.

Several results have been attributed to the activities of the bureau—a greater diversification of crops, a more favorable attitude on the part of the farmer towards taxation, encouragement of the boys' and girls' canning clubs in efforts to improve farm conditions, and, of course, the establishing of a market for farm products which otherwise would be wasted. The bureau, after all, merely solves the problem of obtaining customers. Whether the system inaugurated actually results in lower-

¹³ Herndon, John G., Jr.: South Carolina's Bureau of Marketing. *Monthly Review*, v. 6, pp. 58-63.

ing the cost of living is another question, and one which the report does not answer. The general conclusion must be that the elimination of the middleman under the present organization of our markets will not necessarily result in decreasing the cost of living. No doubt much can be accomplished by eliminating inefficient and dishonest and surplus middlemen.

We have been uncritical of the statement that the normal American standard of living demands that the husband should be the sole support of his family or at least that his earnings should not be supplemented by income derived from the employment, outside the home, of the wife and younger children. The federal Keating-Owen Bill, regulating the hours and conditions of the employment of children engaged in mines and quarries and in the manufacture of goods entering into interstate commerce, shows that we are attempting to attain our standard in regard to the employment of children. This law went into effect September 1. Whether our assumption is true that the American standard of living does not permit of the gainful employment of married women outside the home, is distinctly doubtful, especially in view of the statistics of women at work, based upon the 1910 census, which will soon be available.

Dr. Rubinow, in his first article on real wages, ascribed the apparent increase in comforts enjoyed by the workingman's family to the increased employment of women in industry. The employment of women in industry since 1870 has been characterized by great increase in the number employed and by a change in the character of the work which women have entered. Since 1870 the number of women at work has increased at a rate greater than the increase in the total number of women, and the increase in the number of men employed in industry. The proportion of the total number of women employed in the classes of occupations known as domestic and personal pursuits and in agricultural pursuits has decreased, while the proportion employed in professional pursuits, in trade and transportation, and in manufacturing and mechanical pursuits has increased, in the latter, however, not so rapidly as in the other two. Advance sheets of the special report upon women at work, based upon the 1910 census, bring out another tendency. The proportion of all married women who are at work, and the proportion which married women constitute of the total number of women employed, has steadily increased, the greatest increase occurring during the decade 1900-1910. The report shows that in 1890, 4.6 per cent, in 1900, 5.6 per cent, and in 1910, 10.7 per cent of all married women sixteen

years of age and over were gainfully employed; that in 1890, 14.3 per cent, in 1900, 15.9 per cent, and in 1910, 25.4 per cent of all women sixteen years of age and over employed in industry were married women. The increase in the employment of married women in the decade 1900 to 1910 is remarkable and in most instances probably due to necessity. During this same period the total number of women employed almost doubled. Dr. Rubinow's surmise as to the cause of the improvements in comforts of the working class is verified by these data. Very evidently the forces at work in society which are tending to take women out of the home into industry, are carrying married women out also—even the married woman with a family.

Some idea of the changes which may take place in the position of women in the United States as a result of our entrance into the war may be gained from a knowledge of such changes as have accompanied the necessary shifting in industry in England.¹⁴ Over half a million women entered the ranks of English working women between the outbreak of the war and the spring of 1916. The January, 1917, number of the *British Labor Gazette* estimates that in October, 1916, the net increase in the number of women engaged in industry outside the home since the war began is in round numbers 850,000.¹⁵ Certain tendencies shown before the war have been intensified during the war. The decline in the proportion of all women at work engaged in domestic service and in agriculture has continued, while an enormous increase has occurred in the number and proportion of women employed in the "non-industrial" occupations of banking and finance, of transport, and in government employ. The war has thus opened up to women many occupations which prejudice, tradition, and custom have closed to her. The article discusses such questions as the manner and extent to which women are replacing men in industry, the effect of newer, heavier work upon the health of women workers, the wages received by women as compared with those they received before the war, and those received by men. Another problem to be considered is the very important one of the employment of women after the war. This is, of course, now largely a matter of speculation. We can be sure of one thing, and that is that conditions will be different after the war. Many forces will operate to keep women in

¹⁴ Women in Industry in Great Britain during the War, based on a study carried on under the direction of the British Association for the Advancement of Science. *Monthly Review of the U. S. Bureau of Labor Statistics*, v. 4, pp. 335-346. (Only certain points of this article can be referred to here, but it is well worth reading.)

¹⁵ *Monthly Review*, v. 4, p. 347.

industry in increasing numbers. All classes of women have gone into industry, but the majority are working women or the wives of working men. Many have gone to work as a patriotic duty, but many more have been actuated by the need of adding to the family income. Some will not remain and yet for large numbers the necessity or desire to earn money will continue. Then, too, the replacement of men by women has in many instances been accomplished by the reorganization of the industry, or by the introduction of new machines which the employer will refuse to scrap. These changes have been based upon the capacity of woman rather than of man labor. The demand for labor will undoubtedly be great, and not necessarily of the kind in existence before the war. The opportunities and inducements for the employment of women outside the home will be many. Will these forces operate to increase greatly the number of married women in industry? If so what effect will it have upon our standard of living—upon the organization of the household?

We may conclude that one important measure of the value and success of the teachings of home economics will be found as they affect the standard of living. Improvement in standards may be brought about (1) by increase in the purchasing power of money due to better production or to increased income or to both, (2) by better consumption of goods. We have, on the whole, relied on the first method for improvements in our standard. Because of the fact that the prices of goods which constitute the bulk of expenditures of the ordinary family are increasing more rapidly than the incomes of such families, because of the enormous waste involved in warfare, the necessity for wiser consumption is upon us if we are to maintain an adequate standard of living. This involves the application of scientific and business principles to the home, the better organization of the household, which will allow considerable labor to be used more productively, and the setting up of better, truer values in the home.

CORRECTION

Footnote 4 in the first part of this article in the December JOURNAL should read:

⁴ Jones, F. W. Real Wages in Recent Years. *Amer. Econ. Rev.*, v. 7, pp. 319-330.

FAT ABSORPTION IN FRYING DOUGHNUTS

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From the Laboratory of Food Chemistry, Home Economics, University of Chicago¹

In carrying out investigations as to the chemical changes which take place in deep-fat frying some preliminary work has been done to ascertain the variations in absorption of fat in frying doughnuts made by different recipes. An account of this work is given in this paper.

Doughnuts made by a recipe which has given good results in the cooking laboratories of the University were used as a basis for the work.

MATERIALS	GRAMS	OR APPROXIMATELY
Sugar.....	300	1½ cups
Egg.....	84	2 cups
Crisco.....	34	3 tablespoons
Milk.....	340	1½ cups
Baking powder.....	25	6 teaspoons
Flour.....	681 + 28 used in rolling out dough	6 cups

This dough contained 5 per cent of fat or ether-soluble substance as shown by analysis. By making allowance for the average increase in weight in frying, the fat *in* the dough of the standard fried doughnut as opposed to the fat *taken up* in frying may be computed to be approximately 4 per cent of its cooked weight.

The doughnuts were rolled out in an embroidery hoop 18 cm. in diameter and 1 cm. high, cut by a medium-sized cutter—outer diameter 6.5 cm., diameter of hole 2.1 cm.—and fried in deep cottonseed oil for five minutes at a temperature of 200°C. After they were lifted from the fat, and allowed to drain a few seconds, they were wrapped in paper napkins until cool enough to handle easily. Made in this way the doughnuts were always light, of good flavor, and not unusually greasy. They might well be classed as a good average homemade product. Cottonseed oil at 200°C. was chosen as the frying medium, after preliminary experiment with other fats and temperatures, both because of its convenience and of the fact that it gave consistently pleasing products.

The raw doughnuts were weighed just before and after frying. There was always a gain, varying between 19 and 24 per cent of the raw weight, thus showing that the loss in water was more than balanced by the gain in fat.

¹ This work was done under the direction of Dr. Katharine Blunt.

To obtain a fair sample of the fried doughnuts for determination of the fat it was found best to allow them to dry in the air for two days, noting the loss of weight which averaged about 1.3 per cent of the original fresh weight. Two of them were then ground in a meat grinder, mixed thoroughly, and a sample at once removed to a weighing bottle. The figures for the per cent of fat as given below are calculated on the basis of the weight of the freshly fried doughnut.

Some of the fat determinations were made by the usual method, drying first to constant weight in a vacuum desiccator, and then extracting with anhydrous ether for eight to ten hours in an extraction apparatus. For other determinations the Polenski² method, slightly modified, was used, since it had been found by previous workers that the direct extraction methods were not always satisfactory for the determination of fat in bread stuffs. About 4 grams of the fresh, air dried sample were hydrolyzed by boiling for 30 minutes in 25 cc. of $\frac{N}{2}$ hydrochloric acid, the acid neutralized, and the well-cooled mixture shaken with alcohol, ether, and petroleum ether. The ether layer was allowed to separate, then half of it was blown into a pipette by an aspirator and filtered through cotton into a weighed flask, the ether distilled off, and the residue dried and weighed. It was found that the results obtained by the two methods agreed more closely than duplicates for different frying experiments.

The results of the experiments are given in the following table:

RECIPE	NUMBER OF DOUGH-NUTS FRIED	WEIGHT OF RAW DOUGH-NUTS	WEIGHT OF COOKED DOUGH-NUTS	IN-CREASE IN WEIGHT	FAT IN COOKED DOUGHNUTS	
		grams	grams	per cent	per cent	Average
Standard.....	4	137.5	163.8	19.1	33.8 33.7 36.0	34.7
Standard.....	3	108.7	140.0	28.9	35.2	
Egg doubled.....	4	139.5	168.0	20.5	—	—
Egg quadrupled } Flour increased $\frac{1}{4}$ }	4	131.0	142.0	8.4	24.5 24.6 43.9	24.6
Fat doubled.....	4	136.5	184.5	35.2	43.0 48.0	43.4
Fat quadrupled.....	4	135.2	187.5	38.7	47.6 43.2	47.8
Sugar doubled.....	4	135.8	192.8	42.0	45.2	44.2
Sugar quadrupled.....	1	The doughnut disintegrated absorbing large quantities of fat.				

² E. Polenski. Arbeiten aus dem Kaiserlichen Gesundheitsamte, 33 (1910), pp. 563-579.

These results show, first of all, that the per cent of fat in all the doughnuts was remarkably high—an average of 34.7 per cent for the standard recipe and 38.9 per cent for all. Other experiments, carried out at this time but not published, in which temperature, size of doughnuts, and kind of fat used in frying were varied, confirm this high value for the fat of homemade doughnuts, since from over 30 determinations an average fat content of 33 per cent of the cooked weight was found. Computed for a single standard doughnut of 44 grams, this gives nearly 15 grams of fat or almost $1\frac{1}{2}$ tablespoonfuls.

This amount of the fat is much higher than that given in Bulletin 28³—21.0 per cent—and than that found by analysis of doughnuts purchased in two different stores in Chicago—21.0 per cent and 25.6 per cent. The commercial doughnuts tasted less sweet than ours and were doubtless made from plainer recipes, so that their smaller fat content might be expected from the rest of our work.

Varying the recipe makes a marked difference in the fat taken up by frying. When the egg was increased fourfold the ether-soluble content of the dough itself was of course slightly increased, though the increase was offset to some extent by the addition of 200 more grams of flour which were needed to make the dough stiff enough for rolling. Yet, as shown in the table, there was a marked decrease in the total fat of the fried doughnut. Instead of the 34.7 per cent for the standard recipe, this egg-rich doughnut contained only 24.6 per cent. The doughnut made by this recipe was yellow in color, light, of good flavor, but showed a tendency to form tunnels.

Doubling the fat in the recipe and then increasing it fourfold increased the absorption of fat greatly in excess of the added fat in the dough. Even the greater change in the recipe merely changed the fat *in* the fried doughnut, the fat of the dough itself, from 4.0 to 6.7 per cent, yet the total fat went up to 47.5 per cent. The doughnuts so made were all light and fluffy, but were quite greasy.

Upon doubling the sugar in the recipe the fat content of the cooked doughnut rose to 44.2 per cent. The doughnuts were crisp, brown, and greasy. When the sugar was increased fourfold, the doughnuts disintegrated in the fat and the crumb absorbed great quantities of it.

The experiments thus show that doughnuts may take up a high percentage of fat in frying, the amount of fat absorbed varying with variations in the recipe. It is increased by increasing the fat and the sugar in the dough and decreased by increasing the egg and the flour.

³ The Chemical Composition of American Food Materials. U. S. Dept. Agr., Office Expt. Stas. Bul. 23.

THE NEW FOOD CARD

The United States food administration is to issue a new card giving additional directions to those on the first home card. Everyone is asked to maintain rigidly a minimum of at least:¹

ONE WHEATLESS day each week and one WHEATLESS MEAL each day; the wheatless day to be Wednesday. By wheatless we mean to eat no wheat products.

ONE MEATLESS day each week which shall be Tuesday and one meatless meal each day. By meatless we mean to eat no red meat—beef, pork, mutton, veal, lamb; no preserved meat—beef, bacon, ham or lard.

ONE PORKLESS day each week in addition to Tuesday, which shall be Saturday. By porkless we mean no fresh or salted pork, bacon, ham or lard.

SUGAR—You can materially reduce sugar by reducing the use of candy and sweet drinks. We will make every endeavor to see that the country is provided with a supply of household sugar on the basis of 3 pounds of sugar for each person per month. Do not consume more.

As a nation we eat and waste 80 per cent more protein than we require to maintain health. Therefore, we can reduce the amount of meat we eat without harm.

We eat and waste 140 per cent more fat than is necessary.

Of the carbohydrates we can just as well consume corn, oats, and the other cereals as wheat and we have abundant supplies of potatoes and vegetables.

Do not limit your supplies of milk and table butter; but consume it all. Do not waste any.

You can reduce the consumption of fats by reducing pastry and fried foods.

Remember the gospel of the clean plate, the serving of small portions, the purchase of less supplies.

The card warns against hoarding:

Any person in the United States who buys more foodstuffs than he customarily keeps at home in peace times is defeating the Food Administration in its purpose to secure a just distribution of food and in its great endeavors to reduce prices. The hoarding of food in households is not only unnecessary, as the Government is protecting the food supply of our people, but it is selfish and is a cause of high prices.

Such actions multiplied by thousands increase the demands upon our railways for cars, and already, because of our military demands, it is with extreme difficulty that we can now move the vitally necessary food to markets.

The "insidious propaganda" against conservation and increased pro-

¹ This is only the first draft, not the final form of the card.

duction is called "direct assistance" to those against whom we are fighting.

The reverse side of the card carries the following message:

To Members of the United States Food Administration:

The food situation in Europe is far graver than when the preliminary survey of the food supply of the world for this year was made. Beyond the demands of the Allies there is a call upon us by the friendly neutrals for food supplies, and, if we can not at least in part respond to these neutral calls, starvation on an unparalleled scale must ensue.

Food has now taken a dominant position in the war, and we must ask the American people to sacrifice far more than was at first thought necessary. We have exported the whole of the surplus of the wheat from this harvest after reserving to ourselves an amount sufficient for our normal consumption of seed and flour until the next harvest, and therefore the amount of wheat flour that the United States can contribute to mix with the war bread of the Allies during this winter will be exactly the amount which our people have saved each month on their behalf.

The Allies today ask for 25 per cent more meat and fats (pork, dairy products and vegetable oils) than our monthly production permits us to send them unless we can consume less. Due to the shortage in shipping, our available sugar supplies must be less than normal from the present time forward.

If we are to reduce the consumption of the few products which we should export abroad, we shall need to eat a larger proportion of many different foodstuffs which we can not export and which we have at home. For this reason we **MUST NOT** waste **ANY** food stuffs.

We must not overlook the fact that Russia collapsed not because of the Germans on her borders but largely because of the failure to organize and feed her own citizens, and, if we are to emerge victorious from this war, we can not risk the collapse of another of the Allies from this same cause. There is no waste of food among any of the Allies—there is the most drastic reduction in their consumption; there is actual privation among their women and children; there is starvation in Belgium.

It is a matter for the conscientious consideration of every individual that he or she should eat only that which is necessary to maintain bodily health and strength and unselfishly to select those foodstuffs the use of which relieves international necessities. In this winter of 1918 lies the period when there will be tested in this great free country of ours the question as to whether or not our people are capable of voluntary individual self-sacrifice to save the world.

HERBERT HOOVER,
United States Food Administrator.

FOR THE HOMEMAKER

VEGETABLE OILS AND THEIR USE IN COOKING

KATHARINE BLUNT

University of Chicago

The Food Administration asks us to be careful in the use of all fats but particularly animal fats and particularly butter in cooking. From the bakers, fat economies have been required. Heretofore they have used in bread from 2 to 10 pounds of shortening per barrel of flour or an average of 6 pounds. Now they may use only 2 pounds per barrel and this 2 pounds must be either all vegetable fat or a compound containing not more than 15 per cent animal fat. Of the housekeeper requests are made, not requirements. It therefore behooves us to bring together our knowledge of the numerous fats on the market, especially the vegetable fats—what they are, how they are prepared, and how vegetable fats may be substituted for butter and other animal fats.

Oleomargarine is sometimes made wholly of animal fat but more often of a mixture of animal and vegetable. Its components vary somewhat but usually the chief fats contained in it are the softer part of beef fat called oleo oil, lard, cottonseed, or peanut oil, and in the more expensive grades, a little butter. The mixture is churned up with milk to give as nearly as possible the texture and taste of butter. It is manufactured under government supervision and the process is exhibited to the public with particular pride in at least one of the big Chicago concerns. Oleomargarine is popularly called either oleo or butterine but the longer term is the legal one for any table fat made as a substitute for butter. Nut margarin is usually a mixture of coconut oil (a soft solid in this northern country), and cottonseed or peanut oil, whichever happens to be the cheaper, churned with milk.

The vegetable oils on the market are constantly increasing. In many sections of the country the chief ones, besides olive, are now cottonseed oil and corn oil, sold under trade names as Wesson oil and Mazola respectively, and usually at a price much lower than olive oil and about the same as lard. Peanut oil, too, is available in some places and even

sesame and soy-bean oil. Much vegetable oil is now converted into a solid fat by a process the development of which makes one of the most interesting chapters of the application of chemical research to manufacturing. Any one of the oils, cottonseed, corn, peanut, is mixed with a "catalyzer," usually powdered nickel, and hydrogen is passed in under carefully controlled conditions of heating and pressure. Part of these liquid fats react with the hydrogen to form the solids, thus yielding a fat of any desired degree of hardness. After the nickel is filtered out and the fat cooled, it is usually about the consistency of lard, but without the characteristic taste or odor. Several firms now put out these hydrogenated oils under various trade names—crisco, crusto, etc. The older lard substitutes, snowdrift, cottolene, and the like, are mixtures of animal and vegetable products, chiefly beef stearin and cottonseed oil.

The fats and oils are all essentially alike in their composition since they all consist of mixtures of solid and liquid glycerides, so named from the glycerine which may be made from them and which is of especial interest just now because it is necessary in making high explosives.

The characteristic flavors and odors of the different fats are due not to the glycerides, which are tasteless and odorless, but to unknown substances present in minute amounts. The more thoroughly an oil is refined the less of these substances is left in it. Cottonseed oil, for instance, when first expressed from the seeds is dark reddish brown in color and has a sharp, disagreeable taste and odor, but when ready for the market is practically neutral and almost free from taste and odor. It is a "bland" oil. The edible olive oil is not refined but merely filtered after pressing from the olives, and therefore retains more of its characteristic taste.

There is even less difference in the behavior of the oils and fats in the body than there is in their composition. They are all practically completely digested, all give the same amount of fuel, and all slow up digestion in the stomach, so that a meal very rich in fat may stay a long time in the stomach and discomfort may result. Butter fat and oleomargarine made from beef fat do have one advantage over the others, for they alone contain an unknown substance necessary to the growth of the young and the normal health of the adult. This substance is present in milk, of course, as butter contains it, and also in leaf vegetables, so that if we have a reasonable amount of these in our diet there is no danger of our lacking it even though we eat no butter, but for those with a very limited diet, oleomargarine is probably really safer than nut margarin or the vegetable oils.

As to keeping qualities, the oils are possibly a little poorer than the solid fats but there need be very little difficulty if the oil is kept in the dark, in a closed vessel, and in a cool place. Cans are better containers than glass jars or bottles because they keep out the light.

Which of the various fats we use, therefore, is largely a question of habit. For frying, a variety has long been used. In our laboratories we have fried doughnuts in quick succession in half a dozen different fats, solid and liquid, and found that a preference for one or the other was more or less a matter of personal taste. One point to be considered is that the nearly neutral fats—such as cottonseed oil and its products—have a higher smoking temperature and are therefore more satisfactory to use than the others which may readily be heated up to their smoking temperatures. The amount of decomposition of the fat in frying has probably been exaggerated. The free acid in the fat is increased only very little, a few tenths of a per cent, even when the fat is heated above its smoking temperature. The much talked of acrolein with its irritating odor is probably formed but in such small quantity that it is difficult to get a positive test for it. We found, as have others, that it was important to have the fat hot enough to brown the dough thoroughly, else it soaked up more fat. However, even under favorable conditions, deep fat frying may use up an appalling amount of fat. Our doughnuts, good ones, were often 33 per cent fat. This, calculated for a good-sized one, is the equivalent of more than $1\frac{1}{2}$ tablespoons for a single doughnut.¹

For shortening, vegetable oils can often be well used. Oils for pastry making are more or less of a novelty to most people but again and again this past summer Miss Elizabeth W. Miller of our department has had delicious pie crusts made with cottonseed or corn oils. The crust was friable rather than flaky as with the solid fats, but was still tender. The oil itself "moistened" the flour so that the water had to be cut down, and then a satisfactory degree of richness was secured with one-third less of the oil than solid shortening.

In cake, too, Miss Miller has used the oils with entire success. In the richest (which we should not make at all now), a comparison of cakes made with butter and with oils showed a real difference in taste unless spices were used, but in the less rich only the person who had just trained herself could distinguish. We have compared gingerbread made with butter and with mutton fat, which has an especially strong flavor, and

¹ For an account of experiments upon which this statement is based see page 13.

could not tell which was which by any difference in taste but only by a difference in texture.

"The economy of substituting less expensive fats for those high priced luxuries can easily be seen," says a recent University of Illinois bulletin. "For example, one cup of mayonnaise dressing made of olive oil bought by the quart costs 27 cents, whereas if made of cottonseed oil, one cup costs $11\frac{1}{4}$ cents. Again, the substitution of one cup of oleo-margarine for one cup of butter in a cake gave practically identical results and reduced the cost by $8\frac{1}{2}$ cents. Partial substitution of Crisco might profitably have reduced it still further."

Of course, much rich cake or pastry or frying is emphatically to be avoided, but these few suggestions are given to show that the fats we do use may be vegetable fats. These fats are harder to ship, and their production is the easiest to increase. We can use them and save animal fats and especially butter in cooking, with practically no hardship.

Bake, boil, and broil more—fry less.—*U. S. Food Administration.*

Tag-Your-Shovel Day is set for January 30. A tag will be provided not only for the coal shovel of every household in the country, including the White House, but for the shovels used in the public buildings, the National Capitol, State Capitols, and city halls. The school children are to do the distributing. "This tag should remind each man, woman, and child who uses a coal shovel that every shovelful of coal saved means just so much additional power and help and support for the American soldier and sailor on the firing line."

THE MARKETING CLUBS OF PITTSBURGH

ALMA Y. JOHNSON

It was in the early part of 1913, I believe, that Mrs. F. organized the marketing clubs of Pittsburgh and Allegheny County.

In all there were about 34 or 35 of them. Mrs. F. is a splendid organizer and aroused a great deal of enthusiasm among the women. We all thought we should be able to reduce the high cost of living very materially.

I was one of the first members of the Pittsburgh Marketing Club and represented it at the State Federation one year. I was a member of the Bellevue Marketing Club which had a membership of more than three hundred and was, perhaps, the biggest success of all. I was a member of the first Avalon club and president of the second one. I knew, personally, the presidents of several of the other clubs.

If there are any marketing clubs in existence today I do not know where they are. All, I think, have gone to pieces.

Many of them hung upon the success or failure of a curb market. These failed for two reasons. Few farmers were willing to sell their goods for less money on one street than they could get by driving around on several streets. They had their regular customers who would not come to the curb market, and it did not pay a farmer to lose his steady trade with these women. Then, too, the women found it inconvenient to stop their work and go out during the busiest time of the day, particularly if they had children.

The day of the universal market basket is past. Popular opinion to the contrary notwithstanding, it is not a matter of economy for every woman to go to market or to the grocery, herself. When she does go she sees so many things that she buys more than if she sent in an order over the telephone or by a boy. Then, too, she must stop her work, dress, and perhaps dress one or more children, go to the store, stand around half or three quarters of an hour, come home, redress herself and children and then pick up her work where she left off.

One of the biggest grocers in Pittsburgh says he would give a large sum of money to anyone who could persuade the women to come to his store in person, because they always buy more.

One marketing club failed because the chairman of the butter and egg committee, a very wealthy woman and prominent church worker, de-

cided to share in the profit and had part of the eggs sent to her home. From there she sold them to her friends at store prices.

One failed because the women who did the actual selling of the goods at the distributing center were obliged to do hard manual labor and to serve, without remuneration, not the other members of the club, but their servants who were sent to buy the goods.

One club gradually faded from existence until revived by the genius and enthusiasm of a new member. She did all the work, herself, all the buying and all the selling, keeping the goods, for the greater part of the time, in her own home. She served the club without pay and without thanks. When eggs were broken she used them and paid as much for them as the other women paid. She made a fruit cake one night after twelve o'clock because that was the only time she had, and the crate of eggs had come with two dozen broken. During this period the club was a great success.

But this woman had a long serious illness and when she returned to the club found that they owed more than eighty-five dollars over and above the worth of what was in the store. She went to work as never before until enough money was made to pay the debt and clear the name of the club. Then she quit. And the club was no more.

The Bellevue Marketing Club, owing to the genius of Mrs. H., was a great success. She had a store where all sorts of things were sold. One committee bought butter, eggs, and cheese. One bought groceries, one poultry and country meats. The store did a business of from three to four thousand dollars a year.

When Mrs. H. refused another reelection the club began to go back. This store required the same amount of personal attention and business ability that any store needs to be a success. The new president had not the time, enthusiasm, nor genius of Mrs. H. Moreover, the women were tired of giving the time and labor required for success, without receiving any return, even in the form of gratitude.

Finally the store was closed. The president refused a reelection, no one could be found to accept the presidency and the club formally disbanded in June, 1916.

There were several reasons for the discontinuance of these clubs in addition to those I have mentioned. Wholesalers as a class refused to sell to us; we could not purchase anywhere as a grocer can, but were compelled to restrict our buying to a few firms. Women do not like to carry home heavy baskets and packages and should not be compelled

to carry such things very far. And groceries are heavy. Many women must buy where they can charge the goods because their husbands either cannot or will not give them cash in their purses; and many believe that when they do have cash to spend it is their duty to spend it in the store of the merchant who has extended credit to them in times past.

We did, undoubtedly, buy goods much cheaper at the marketing club store, but it was because we carried home heavy baskets, paid cash, and because many women did hard work for which they were not paid, the president the most of all.

Although the clubs disbanded they were not a failure, particularly in Bellevue. The women learned that they can get more and ought to get more for cash and that delivery costs the consumer just what it costs the dealer.

At the earnest request of club members, R. and H., a grocery firm of Bellevue changed their plan of doing business and now sell only for cash. This store now makes two deliveries a day, only, in a restricted area, and two deliveries a week anywhere else. They make no special deliveries at all. They have cut out three unlimited telephones. They used to call three to four hundred people every day. Now the women call them. They have also discharged four solicitors at \$18 to \$20 per week each. Those who do not telephone come to the store. They used to deliver three-fourths of all goods bought, now they deliver less than one-third. And they are doing 30 per cent more business.

The customers save at least 12 per cent on their purchases. Mr. H. says 12 per cent is a very conservative estimate.

All are pleased. Neither the women nor the grocers would willingly go back to the old credit system.

So the educational value was, after all, the greatest result of the marketing clubs.

LOYALTY

If put to the pinch, an ounce of loyalty is worth a pound of cleverness.—*Business Men's Calendar*.

DO YOU KNOW CORN MEAL?¹

Its use means service to your country, nourishing food for you.

Try corn bread and see how good it can be. There are many kinds. You will wonder why you didn't use it every day before the war.

It is very nourishing, too. A cup of corn meal gives even more fuel to your body than a cup of wheat flour.

Here is a quick kind of corn bread. Our grandmothers used to bake it on a board before the open fire. You can bake it in your oven.

Corn Dodger

2 cups corn meal
1 teaspoon salt

2 teaspoons fat
1½ cups boiling water

Pour the boiling water over the other materials. Beat well. When cool, form into thin cakes and bake thirty minutes in a hot oven. Makes 14 biscuits. These crisp little biscuits are good with butter or gravy. Eat them with your meat and vegetables.

CORN SAVED OUR PIONEERS

CORN AS BREAD

Corn bread is especially good made with sour milk and soda; but sweet milk and baking powder are satisfactory. Eggs improve the flavor and add to the food value, but may be omitted if too expensive.

Corn Bread

(1)

2 cups corn meal
2 cups sweet milk (whole or skim)
4 teaspoons baking powder
1 tablespoon sugar
2 tablespoons fat
1 teaspoon salt
1 egg (may be omitted)

(2)

2 cups corn meal
2 cups sour milk
1 teaspoon soda
1 tablespoon sugar
2 tablespoons fat
1 teaspoon salt
1 egg (may be omitted)

Mix dry ingredients. Add milk, well-beaten egg, and melted fat. Beat well. Bake in shallow pan for about 30 minutes.

¹One of a series of leaflets issued by the United States Department of Agriculture and the United States Food Administration. They may be obtained from the Department of Agriculture.

AN OLD SOUTHERN RECIPE

Here is an old-fashioned soft spoon bread that Southerners like. With milk or sirup it makes a satisfying meal.

Spoon Bread

2 cups water	1 tablespoon fat
1 cup milk (whole or skim)	2 eggs
1 cup corn meal	2 teaspoons salt

Mix water and corn meal and bring to the boiling point and cook five minutes. Beat eggs well and add with other materials to the mush. Beat well and bake in a well-greased pan for twenty-five minutes in a hot oven. Serve from the same dish with a spoon. Enough for six.

CORN MEAL AND MILK

Do you use corn-meal mush for a breakfast food? It is both cheap and good. Cooked in skim milk instead of water it is extra fine and the food value of the dish is nearly doubled.

Here is a delicious corn meal and milk dessert.

Indian Pudding

4 cups milk (whole or skim)	$\frac{3}{4}$ teaspoon salt
$\frac{1}{4}$ cup cornmeal	1 teaspoon ginger
	$\frac{1}{2}$ cup molasses

Cook milk and meal in a double boiler twenty minutes; add molasses, salt, and ginger. Pour into buttered pudding dish and bake two hours in a slow oven, or use your fireless cooker. Serve with milk. This makes a good and nourishing dessert. Serves six.

CORN MEAL AND MEAT

Corn meal is good combined with meats. Such a dish is a meal in itself. Try this one.

Tamale Pie

2 cups corn meal	1 onion
6 cups water	2 cups tomatoes
1 tablespoon fat	1 pound bamburger steak

Make a mush by stirring the corn meal and $1\frac{1}{2}$ teaspoons salt into boiling water. Cook forty-five minutes. Brown onion in fat, add hamburger and stir until red color disappears. Add salt, pepper, and

tomato. A sweet pepper is an addition. Grease baking dish, put in layer of corn-meal mush, add seasoned meat, and cover with mush. Bake one-half hour. Serves six.

CORN HELPS US FEED THE WORLD

The more we use the more food can be sent abroad. You need not tire of it, as there are at least fifty ways to use corn meal to make good dishes for dinner, supper, lunch, or breakfast. Here are some suggestions:

<i>Hot Breads</i>	<i>Desserts</i>	<i>Hearty Dishes</i>
Boston brown bread	Corn-meal molasses cake	Corn-meal croquettes
Hoecake	Apple corn bread	Corn-meal fish balls
Muffins	Dumplings	Meat and cornmeal dumplings
Biscuits	Gingerbread	Italian polenta
Griddle cakes	Fruit gems	Tamales.
Waffles.		

The recipes are in Farmers' Bulletin 565, "Corn Meal as a Food and Ways of using It," free from the Department of Agriculture.

A NEW RULE FOR CORNMEAL GINGERBREAD

1 cup cornmeal	1 teaspoon cinnamon
1 cup flour	$\frac{1}{2}$ teaspoon cloves
$\frac{1}{2}$ teaspoon soda	1 cup sour milk
2 teaspoons baking powder	1 cup molasses
$\frac{1}{4}$ teaspoon salt	2 tablespoons melted shortening
2 teaspoons ginger	

Sift together the dry ingredients; mix thoroughly with the milk, molasses, and shortening. Bake half an hour in a moderate oven.

Two cups of buckwheat flour may be substituted for the cornmeal and flour in this recipe. This will have the characteristic flavor of buckwheat. If it is too strong, use only 1 cup of buckwheat and $1\frac{1}{8}$ cups of white flour. Two and a half cups of rye, or $2\frac{1}{2}$ cups of a mixture of rye and white flour might be used. In using rye and white flour a larger quantity is necessary because these flours absorb less liquid than do the cornmeal and buckwheat.

STUDENT CONTRIBUTIONS

AN ANALYTICAL STUDY OF SOME VARIETIES OF WHITE GOODS

MARTHA FARNUM

Under the direction of Ruth O'Brien

Textile Chemistry Laboratories, Iowa State College

Since this is a time when the welfare of our country depends so largely on the wise and judicious expenditure of money, it is extremely necessary that we should know as much as possible concerning the value of every article that we buy. This study was made in the hope of learning something more definite about the comparative intrinsic worth of variously priced domestics, and of assisting the woman who so often wonders if it is "just as well" to buy 15 cent as 17 cent muslin, or muslin instead of cambric. Such problems frequently arise and are usually solved by the psychology of the moment without the help of any real information. In fact, there are so few scientific or popular publications on cloth analysis accessible to the housewife that such information is very hard for her to obtain.

Moreover, the methods of determining the value of textile materials are not as yet very well worked out. There is no standardized method of testing them for their wearing qualities and we are forced to use such tests as breaking strength, yarn number, thread count. Of the three, breaking strength comes the nearest to estimating the durability of the material but this result only gives the tearing strength, and, as we do not often tear our clothes outright, it is very inadequate. If there were a standardized abrasive machine by which we could measure the resistance offered to constant wear we would be able to come nearer learning the true wearing qualities. Attempts have been made to perfect such a machine in this and other laboratories but no definite results have been obtained as yet. In this study we limited ourselves to the factors which seemed the most important from the housewife's standpoint, namely, breaking strength, thread count, and shrinkage.

EXPERIMENTAL

In performing the tests for breaking strength, the method prescribed by the Bureau of Standards was used.¹ Test pieces were cut 8 inches long by $1\frac{1}{4}$ inches wide and threads were drawn from each side until the standard width of one inch was obtained. They were then subjected to a temperature of 105°C. for two hours and the breaking strength recorded within thirty seconds. The machine used for this was an automatic cloth tester which pulled at the rate of 12 inches per minute. This method is known in textile laboratories as the strip method and seems to have met with the approval of more experimenters than the so-called grab method. The chief objection to its use is that there are usually a number of yarns which remain unbroken. These have a slight but direct effect on the reading obtained and warrant corrections.² However, at the present time, such corrections are available only for duck material and the uncorrected textile strengths are always reported.³

For the determination of shrinkage two different methods were carried out. The first consisted of marking the pieces of material into sections about 30 by 50 cm. These were then accurately measured, immersed in boiling water, allowed to remain over night, hung up without wringing, ironed when dry, and the shrinkage determined.⁴ This method is advocated by many analytical laboratories. The same kind of material was also shrunk in the following manner. The pieces used were full width strips about 18 inches long. They were measured accurately and allowed to remain for one hour in water which, although boiling when they were first immersed, gradually cooled down to room temperature. They were then dried, ironed, remeasured, and the shrinkage calculated. This method is one often resorted to by housewives and was used for comparison. The thread count was made according to the directions given by the Bureau of Standards¹ using a typical thread counting instrument.

The materials used were purchased in February, 1917, at a retail store in a typical medium-sized Iowa town. These particular ones were chosen because their prices represented the purchasing possibilities of the average woman.

¹ Bureau of Standards, Bulletin 41, p. 15.

² Proceedings of the American Society for Testing Materials, vol. 16, p. 370.

³ Proceedings of the American Society for Testing Materials, vol. 16, p. 383.

⁴ Technical Testing of Yarns and Textile Fabrics, J. Herzefeld, p. 143.

From Table I it will be seen that with an increase in price there was not always corresponding increase in breaking strength, and when the price reached eighteen to twenty cents the strength had reached the maximum. For example: The weft way of eighteen cent cambric averaged higher than that of twenty cent cambric, whereas the warp remained practically constant; the warp of fifteen cent long cloth excelled the warp of twenty-five cent cloth while the results are just the opposite for the weft. Fourteen cent muslin and eighteen cent muslin were very nearly the same. Taking materials of the same price, the warp of the ten cent domestics averaged nearly the same while the wefts are quite different; fifteen cent nainsook was much lower than fifteen cent cambric; also twenty-five cent nainsook was lower than the twenty-five cent cambric.

TABLE I
Tensile strength table (number of pounds)

Less expensive materials

	10 CENT		10 CENT		12½ CENT		14 CENT	
	Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Cambrics.....								
Longcloth.....			27	19				
Muslins, bleached.....			28.4	14.3	29.2	21.7	34.2	21.4
Muslins (poor quality unbleached)	30.2	14.5	28.5	24.9	33.4	20	29.2	21.4
Nainsooks.....								

More expensive materials

	15 CENT		18 CENT		20 CENT		25 CENT	
	Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Cambrics.....	27.9	14.6	31.7	21.8	31.6	15.5	37	32.8
Longcloth.....	30.1	22.7					27.5	28.1
Muslins, bleached.....			33.1	21.2				
Muslins, unbleached.....			42.6	44.9				
Nainsooks.....	20.6	13.2			27.6	11.1	25.1	14.8

These figures are the averages of ten good breaks made upon strips cut lengthwise of the material (warp) and ten good breaks made upon strips cut crosswise of the material (weft).

In the determination of shrinkage (Table II) it was found that there was less shrinkage (in most cases) in the materials which were allowed to stand over night in water than in those which stood in the water only one hour. There was less shrinkage in the bleached than in the unbleached muslin, and of the cheaper grades the twelve and one-half cent muslin had the least shrinkage. However, all the shrinkage values were

TABLE II
Shrinkage expressed in per cent
 Less expensive material

	10 CENT		10 CENT		12½ CENT		14½ CENT	
	Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Cambrics.... { 1 hour in water.....								
{ All night in water.....								
Longcloth { 1 hour in water.....			3.2	1.9				
{ All night in water.....			2.1	2.3				
Muslins, { 1 hour in water.....			1.9	1.8	2.5	1.2	2.5	1.6
bleached { All night in water.....			1.7	0	2.0	0.3	1.4	1.7
Muslins, { 1 hour in water, poor								
{ quality.....	6.2	3.3	3.8	3.1	4.4	2.7	3.7	4.5
unbleached { All night in water.....	4.8	2.7	2.2	3.0	3.8	3.4	2.0	3.6
Nainsooks.... { 1 hour in water.....								
{ All night in water.....								

More expensive material

	15 CENT		18 CENT		20 CENT		25 CENT	
	Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Cambrics.... { 1 hour in water.....	2.6	1.6	2.6	3.1	2.7	1.9	2.6	0.4
{ All night in water.....	1.7	1.2	1.8	2.6	1.6	2.4	1.7	0
Longcloth { 1 hour in water.....	2.2	1.8					1.7	2.6
{ All night in water.....	1.7	2.5					1.0	1.3
Muslins { 1 hour in water.....			2.5	2.4				
bleached. . . { All night in water.....			2.7	2.5				
Muslins, { 1 hour in water.....			5.3	4.3				
unbleached { All night in water.....			4.8	4.4				
Nainsooks.... { 1 hour in water.....	2.0	3.9			2.6	2.0	1.5	0.8
{ All night in water.....	1.2	1.6			1.9	0.8	1.2	0.4

large enough to warrant consideration in the making of underwear and articles for household use. For example: according to these figures an ordinary skirt band would shrink $\frac{1}{2}$ to 1 inch, and skirts 35 to 40 inches in length would shrink 1 to $1\frac{1}{2}$ inches. From the table it will be noted that there was generally less shrinkage and consequently less necessity of allowing for shrinkage in such cases.

The thread count (Table III) in most cases increased with an increase in price. These results compare rather favorably with the breaking strengths, but less so with shrinkage except in the case of the twenty-five cent grades.

TABLE III
Variation in thread count (per inch)
Less expensive materials

		10 CENT		10 CENT		12½ CENT		14 CENT	
		Ends	Picks	Ends	Picks	Ends	Picks	Ends	Picks
Cambric.....	{ before washing								
	{ after washing								
Longcloth	{ before washing			68	56				
	{ after washing			70	56				
Muslins	{ before washing			68	57	76	70	81	81
bleached ...	{ after washing			69	60	78	71	83	79
Muslins, poor	{ before washing	49	39	48	50	52	43	49	53
quality	{ after washing	50	42	49	52	53	50	50	4
unbleached									
Nainsooks....	{ before washing								
	{ after washing								

More expensive materials

		15 CENT		18 CENT		20 CENT		25 CENT	
		Ends	Picks	Ends	Picks	Ends	Picks	Ends	Picks
Cambric.....	{ before washing	72	66	79	73	102	89	105	96
	{ after washing	74	69	81	74	107	92	106	98
Longcloth	{ before washing	76	74					100	116
	{ after washing	80	76					103	119
Muslins	{ before washing			85	76				
bleached ...	{ after washing			86	77				
Muslins	{ before washing			44	48				
unbleached	{ after washing			47	51				
Nainsooks....	{ before washing	71	72			84	72	94	79
	{ after washing	75	75			87	75	94	80

"Ends" refer to the warp yarns and "picks" to the weft yarns.

SUMMARY

With an increase in price, then, there is not always an increase in breaking strength. In several cases (as in nainsooks, bleached muslins, and cambrics) the medium grades compare favorably with the higher grades and sometimes surpass the higher grades in tensile strength. From this we may conclude that in most cases it is advisable to buy a medium grade.

The increase in shrinkage in the materials which stood only one hour in water over those which stood over night in water may be due to the fact that when the yarns are first contracted by the hot water in one case they have less time to relax back into their normal condition than they do in the other. But since this did not occur in all cases we are not prepared as yet to establish the theory that cloth which remains a long time in water shrinks less than that which remains in water only a short time. Further investigation on the subject would be necessary.

A REQUEST FROM THE BUDGET COMMITTEE

A revised edition of *Thrift By Household Accounting*, 2000 copies of which have been sold, will shortly be published. The Budget Committee invites criticisms and comments on the present edition. Suggestions are desired as to how the introductory discussion on the keeping of accounts can be made more useful; also as to the account forms themselves. There is also a question as to whether the book would be more useful if it included the accounts for a longer period than three months, as at present.

Suggestions with regard to these, or other aspects of the *Thrift Book* are invited and should be sent to the Budget Committee, American Home Economics Association, 1211 Cathedral St., Baltimore.

EDITORIAL

Ruskin's phrase, "the economy of your great grand-mothers and the science of modern chemists" might be transposed in these days of war. Often it is the chemist's discoveries that teach us thrift, and over and over again we find that the "glorified common-sense," which is one definition of science, was a characteristic of our great grand-mothers.

Women of many generations ago found out by experiment that the scalding of the vinegar or the syrup and pouring it hot over the pickle or preserves for three days in succession insured these products against ferments and molds. Only a few days ago a leading worker in agriculture told of watching his grandmother save and dry orange peel that she might have it to "make the jelly jell;" he had remembered it but never saw the reason until he was looking over some of his wife's home economics books.

The suggestion reported by Miss Stanley¹, of a 30 per cent starch paste "to take the place of the elastic gluten of wheat" is another instance where the "findings" of modern chemists merely verify the "doings" of the grandmothers.

Before the days of patent spring wheat flours or of the compressed yeast—which means before the Centennial Exposition at Philadelphia in 1876—it was a common habit of the best bread makers to scald a portion of the flour for making the yeast or "light" bread.

Sometimes this was the method; half a cup or more of the flour was scalded at noon, and when luke-warm a portion of dried yeast cake rolled or pounded fine was stirred through the starchy paste; by night this had become a lively yeast and was enough to start dough for two or more loaves of bread. This same plan is followed, is it not, when the rolled oats have scalding milk poured over them, or the corn meal is scalded when it is used in a white loaf?

Another way of getting at the same end was probably accomplished when the homemade potato yeast was used. This might be made from cooked potatoes, but more often they were grated, and boiling water poured over them at once, thus forming a stiff paste. To this when cool the cupful of yeast reserved from a similar lot was added with salt and

¹ See Jour. H. E., December, 1917, p. 537.

sugar and left to rise till foamy. Often a little ginger was put in; perhaps it had been found to retard undesirable ferments.

All these and many similar incidents seem to justify the old man whose neighbor twitted him saying, "Now your boy has come from college I suppose he is telling you lots that you don't know." To this the reply came, "No, he is only telling me the things I know, in words that I don't understand." Yet eventually he might explain many of the things done, as well as modify many of the processes.

In these days of stress our aim should be to gather together every scrap of inherited wisdom from the past and put it in words that he who "runs may read" and understand and do.

If the trumpet give an uncertain sound who shall prepare himself for war? So also ye unless ye utter by the tongue speech easy to be understood, how shall it be known what is spoken—for ye will be speaking into the air.

How shall he that filleth the place of the unlearned say Amen at thy giving of thanks, seeing he knoweth not what thou sayest; for thou verily givest thanks well but the other is not edified.

I had rather speak five words with my understanding that I might instruct others also, than ten thousand words in an unknown tongue.—*St. Paul.*

ANNA BARROWS.

COMMENT AND DISCUSSION

To the Journal of Home Economics:

The article by Miss Ravenhill on the Scope of Home Economics gives workers in that line food for much thought.

It appears to the writer that Miss Ravenhill does not realize how far the world's living habits are behind the knowledge it possesses in many lines.

Many of the faults she attributes to home economics should, it appears, be charged to the Public Health Association. It is to be remembered that that association has celebrated its fiftieth anniversary, while Home economics can not as yet be said to have been at all generally taught for even half that time. While saying this I remember that three state

institutions started work between 1870-1874, and also that the Home Economics Association was organized in 1908.

One other point of difference with Miss Ravenhill is with her measuring unit. Hygiene is not the lens through which most home economics workers "focus all learning upon the advancement of life." That may be the best means of approach to home economics in England, but it is not in the United States. The department of public health unfortunately is among the last to be organized in many of our colleges.

Here too it seems to me Miss Ravenhill shows some lack of appreciation of the machinery of education as it exists in the United States.

No one department can claim for itself the whole field of knowledge. In actual practice, the work as outlined by Miss Ravenhill is conducted by at least four departments in most of the colleges.

These seem to me the points in the article which are to be accounted for by the fact that Miss Ravenhill writes from the view-point of an English woman not entirely familiar with the development of home economics in the United States.

The letter from Vice President Kinley is such an admirable statement of constructive criticism that I have nothing to add.

ISABEL BEVIER.

Professor Isabel Bevier:

I am returning the JOURNAL OF HOME ECONOMICS, which contains Miss Ravenhill's article. With much that she says I am in agreement. We cannot get on without such articles. They make for progress. I tell my own class that we must never be too hard on the satirist, the critic, or even the kind of antagonist who attains his heaven of elation by merely throwing bricks; for whatever else they do, they compel us constantly to review our own scientific judgments.

I agree with Miss Ravenhill's general criticism of our undergraduate college courses; for what she says about the character of the undergraduate work in home economics is true, now, of pretty nearly all our undergraduate programs of study. I may be wrong, but for a long time I have felt that this evil is a result of the effort to force into our educational system German methods and standards. We have forced the methods of the graduate student into our undergraduate curriculum. We have formed curricula that are intensely specialized. We have largely and in some cases utterly forgotten that the main purpose of education, at any rate in the first two, and possibly the first three, years of our college

courses is training for life and not for callings. In nearly all cases that have come under my observation it is true that departments and teachers present their subjects as if they had no relation to any other subjects in the universe. That, to my mind, is the principal defect of our present educational system from top to bottom. There is no coördinating force. The criticism, therefore, applied with more or less justice by Miss Ravenhill to home economics, is equally applicable in all our departments of study.

In the second place, however, I think that Miss Ravenhill misses, or fails to give due emphasis to one very important fact which, more than all others, accounts for the alleged lack of influence on the improvement of life through the efforts of graduates in home economics. Aside from the fact that they are relatively few, aside from the fact that any such improvement requires generations and not years to permeate the life of a people, she forgets, as we all constantly forget, that, after all, most of the work that we are doing in college and university does not reach directly into the homes of the great masses of the people.

Her elaborate scheme of organization is fine on paper, but the multitudes of fathers and mothers with families of two to seven in four and six room houses, and with incomes of perhaps \$15 to \$20 a week, have no time or means for such coördination and practices, even if they knew about them.

Aside from this, of course, we could easily find what to us are technical defects in Miss Ravenhill's scheme. It is, after all, a somewhat stilted, *a priori* organization. We cannot so differentiate functions in life.

This article, with all its points of excellence is, like, many others, another illustration of the fact that the world has been unable for a generation or more to set and adhere to educational standards. The feeling of unrest and change is everywhere, in many cases without adequate reason. Moreover, the article is another illustration of the use of words which conceal knowledge. I sometimes think that all our departments—shall I say science?—are in danger of becoming what some think “sociology” and others think “education” is—sciences which tell what everybody knows in language that nobody understands. In this connection, by the way, I sometimes have wondered whether there was a household *science* rather than an *art* of the application of science to household affairs.

D. KINLEY.

University of Illinois.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Food Poisoning. By EDWARD OAKES JORDAN. Chicago: University of Chicago Press, 1917, p. 115. \$1.00. By mail of the Journal, \$1.05.

Professor Jordan's book will prove a valuable one for students and teachers of home economics in colleges. His classification of forms of food poisoning give a comprehensive view of the subject. The references both to case histories and to semi-popular literature are of such a nature that they can be used freely by students of the upper classes. As one would expect, the book is throughout marked by accuracy, caution in avoiding sweeping generalizations, and by great good sense. The general view of the sources of infection as given in Chapter V is especially useful as is the discussion of paratyphoid and of botulism. As is generally the case with a brief comprehensive discussion of this sort, the reader wishes for more information on some points: for example, the symptoms of lead poisoning, the amount of heating necessary to destroy some of the organisms, a discussion of sprue; but the book will be widely welcomed as a very valuable and usable source of information.

RUTH WHEELER,
University of Illinois.

Basic Quantity Food Tables. To be used in determining the daily issue of food to the kitchen. Prepared for the use of institutions by the Department of Public Charities, City of New York, July, 1917. For sale by Municipal Reference Library, New York City. \$1.25.

These food tables, which are for the quick determination of the quantity of food necessary for a given number of persons

are arranged in nine different dietaries for officers and staff, nurses, employees, tubercular patients, feeble minded children, lodgers, industrial workers, and hospital patients.

The tables state the quantities of different kinds of food necessary for groups of 100 or 200 to 250 and more, according to the numbers involved in New York City Institutions. The quantities are for a 28-day month with the number of times in this period each food appears in the dietary. The daily per capita allowance for each person is given as well as its multiples for 2, 3, 4, 5, and multiples of 5 up to a maximum for 100 or 200 or more persons.

The tables are edited by Henry C. Wright, Deputy Commissioner of the Department of Charities, and are based on tables worked out by Mr. Charles S. Pitcher, of the Kings Park State Hospital. They will be extremely valuable, both to the practicing institution director and to those in charge of training dietitians.

Lessons in Food Values and Economical Menus. Arranged by ALICE BRADLEY of Miss Farmer's School of Cookery, 30 Huntington Avenue, Boston, Mass., 1917, pp. 29. \$.25.

Meals for Five on \$6 a Week. By JOSEPHINE L. BESSEMS. Elgin, Ill.: David C. Cook Publishing Company, 1916, pp. 28. \$.25.

Kitchenette Cookery. By ANNA MERRITT EAST. Boston: Little, Brown and Company, 1917, pp. 112. \$1.00.

The small pamphlet entitled Food Values and Economical Menus was first arranged for classes in Canteen Cookery from the

Massachusetts Branch of the Special Aid Society for American Preparedness but the fact that it reached a third printing within two months shows that it meets a much wider need. It will be admirably suited for the individual housekeeper or for those groups who will be gathered next year for study of the problem of food supply.

A short discussion of the function of foods and the requirement of the individual is followed by a table of one hundred calorie portions with suggestions as to the choice of a day's diet. The body's need for protein is explained and provided for and the ash constituents and accessory substances are not forgotten. Six days' menus are given, accompanied by recipes and food values, with suggestions for various economies and substitutions.

At the end there are given dietaries for children and rations for soldiers with the directions for building a fireless cooker and for cold pack canning. The thirty pages of the pamphlet are full of most valuable material.

In contrast with the little pamphlet above, is the one, entitled "Meals for Five on Six Dollars a Week," which seems padded and full of platitudes. The discussion of food requirements is limited to requirements for fuel and repair with a slight mention of mineral salts and nothing of accessory substances. The chapters on marketing and food economies contain many generalities but little material which is new or of much importance. Instead of a grouping of foods which will provide for an adequate diet in an elastic fashion, there are two sets of meals, one for summer and one for winter, which are given as scientifically and accurately balanced. The recipes given in the last chapter are those which are found in any cook book so that there seems no need for repeating them.

There is a new and rapidly increasing group of housekeepers whose needs are not met by the usual cook book or household guide. These are the independent women who "love to cook what they eat rather than

sit forever around a boarding house table," and have therefore made homes for themselves even when confined to one room. For these women, "Kitchenette Cookery," will prove a boon indeed. This is an exceedingly practical and helpful little book which shows that it is the product of personal experience.

The first part is taken up with advice as to the arrangement and equipment of working space. The plans given are for a kitchenette seven and one-half by two and one-quarter but they could be adapted to many other situations. Each need is provided for with little expenditure of money but much of thought and ingenuity. Along with the descriptions there are many hints as to methods of work so that the reader is instructed unconsciously as to proper storage of food, and other details. In choosing utensils, emphasis is put upon suitability and efficiency rather than expense, and the aluminum roaster and pressure cooker are made to justify themselves by the many purposes they serve. A price list of the equipment is given in another chapter.

A chapter is devoted to marketing with particular attention to the needs of a shopper whose time is limited. There are many helpful hints as to amounts and methods as well as a short discussion of food values.

The last part of the book is devoted to a description of typical meals such as breakfast, luncheon, company dinner. The routine of preparation and the recipes for the several dishes are given in such a way that an amateur could achieve a successful meal with their aid. The use made of the pressure cooker is especially interesting, and a chapter is given to meals prepared with its aid. Another chapter is devoted to the economical utilization of the ordinary sized can of vegetables or fruit which leaves a half a can to be disposed of in some way.

FRANCES SWAIN,
Chicago Normal College.

War Food. By AMY L. HANDY. BOSTON: Houghton Mifflin Company, 1917, pp. 76. \$75. By mail of the Journal, \$79.

This book contains directions for drying

fruits and vegetables and for canning by the cold-pack method.

Most of the material in the book is similar to that found in Farmers' Bulletins 839 and 841. In the directions for canning, the time for processing the vegetables is in many cases less than that given in Bulletin 839. Since experience has shown that the sterilization of some vegetables is very difficult, a reduction in the time of processing cannot be recommended.

ELIZABETH W. MILLER
University of Chicago.

War Economy in Food. Washington, D. C.:
The U. S. Food Administration.
This pamphlet contains suggestions and

recipes for substitutions in the planning of meals. It is available for general distribution through the Food Administrator of each state.

The Book of Corn Cookery. MARY L. WADE.
Chicago: A. C. McClurg & Co., 1917, pp.
105.

The book consists chiefly of recipes gathered from many sources and different parts of the country. It deals with breads, cake, pones, mush, hominy and gruel, sweet corn and dishes made from it, and desserts and candies.

The book is put out in attractive form, and the recipes are practical and suggestive.

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NEWS FROM THE FIELD

Annual Meeting, American Home Economics Association.—For several years the American Home Economics Association has held a meeting in connection with the Division of Superintendence of the N. E. A. This year there will be a more extended session that will serve as the annual meeting of the Association, continuing through Friday morning and afternoon and Saturday morning, March 1 and 2. There will be a meeting of the Council on Thursday evening. One general session of the Department of Superintendence is to be given to home economics, and Dean Arnold of Simmons College will make the address. It is hoped this will be on Thursday, February 28.

A brief business meeting of the Association, with the report of the president and other officers will be held on Friday morning, followed by a round table discussion that will be continued in the afternoon.

The Saturday morning meeting will be especially planned for the public school teacher, with the hope that there will be a large attendance from New York, New Jersey, and eastern Pennsylvania.

The general topics for the round table discussion will be:

I. What ought home economics teachers to teach the general public about food values and how shall we do it?

II. How does the Smith-Hughes Bill modify the work now being conducted in home economics? What changes and additions does it necessitate?

Miss Isabel Bevier is chairman of the program committee.

The meetings will probably be held at the Hotel Traymore.

The American Dietetic Association. The first national meeting of the American Dietetic Association was held at the Hollenden Hotel in Cleveland, Ohio, October 18

to 20. Representatives from twenty-one states and from Canada were present and not one moment during the entire meeting did interest lag. So many good papers were read and ably discussed that the attendance was more than one hundred people at each session—even the last one, a registration highly gratifying for the first attempt at organization.

Major C. F. Hoover, Chief of the Medical Staff of the Lakeside Hospital of Cleveland, Ohio, who had recently returned from France, gave a very practical opening and welcoming address on Thursday afternoon, speaking of the need and aims of the dietitian, and of her future prospects, giving also facts concerning food conservation, and in regard to war conditions in France.

Miss Lulu Graves, Dietitian of the Lakeside Hospital of Cleveland, as temporary chairman of the Conference, gave the reasons for assembling the dietitians and showed how by concerted action they may raise their standards and give their work a broader outlook.

A Round Table on Food Conservation was conducted by Miss Lenna Cooper of Battle Creek, Michigan. Before the end of this session it was necessary to provide larger quarters. In the evening Rev. Caroline Bartlett Crane, chairman of the Michigan Section of the Woman's Council of National Defense, told what the Woman's Council of National Defense is doing for this country and urged that all dietitians place their "expert knowledge and valuable experience" at the service of the woman's clubs, and all who need it; and also offer help to the training camps.

At the business meeting that followed, Miss Lenna Cooper was chosen as President pro tem and Miss Maude A. Perry as temporary Secretary, and a decision was made to form an organization to be known as The American Dietetic Association.

Friday morning, Dr. Ruth Wheeler of the University of Illinois, gave some results which she had obtained from experimentation on both animals and people at the University. Miss Sawyer of the University of Iowa read an excellent paper on acidosis, reporting observations taken on different children to show their susceptibility to acidosis. She showed by charts and figures the effects of anesthesia and starvation upon some children who develop acidosis after operation, and an interesting discussion on diabetic acidosis followed.

In the afternoon Miss Violet Ryley, General Organizing Dietitian of the Military Hospitals of Canada told what they are doing in the recuperative hospitals, and emphasized the importance of the position of the dietitian in these hospitals. A visit to the Cleveland City Hospital followed.

On Friday evening, a paper by Mr. John Willy of the Hotel Monthly, upon Hotel Management was read by Miss Mary Jones of Battle Creek, Mich., and Mr. Stuart, the manager of the Hollenden Hotel, opened the discussion and answered many questions on the subject.

Miss Louise Pollock, Dietitian of the City Hospital, St. Louis, Missouri, read a paper on "The Dietitian and Her Equip-

ment." The value of several important and useful labor savers was discussed.

On Saturday morning, Dr. Lewis of the Battle Creek Sanitarium, gave a stereopticon lecture in which he showed charts and explained the value of laboratory reports to the dietitian. Scientific dietetics is an actuality and the practical physician of today realizes the need of the dietitian in the successful treatment of his patient after diagnosis has been made.

Miss Elva A. George, of the Red Cross Bureau of Instruction, Washington, D. C. read a paper telling the different phases of work open to the Red Cross Dietitian and Miss Ryley of Canada gave more details about her work in connection with the wounded soldiers.

In the afternoon, Miss Graves told of the work which is being done by "The Dietitian as the Doctor's Assistant." This is a comparatively new field but a field full of opportunity for the person who is willing to do hard work and much of it. One who undertakes it has a bright future not only in hospital work but in field dietetics and as a consulting dietitian as well.

Miss Rena Eckman sent her paper, "The Standardization of Dietetics and the Training of the Dietitian" and it was read by Miss Phyllis Dykeman of Grant Hospital, Columbus, Ohio.

DOMESTIC SCIENCE ORGANIZER FOR NEW ZEALAND

The services of a highly qualified woman to act as organizer of Domestic Science work in Auckland, New Zealand, are required.

The salary offered is £300 per annum. If the successful applicant comes from beyond New Zealand, saloon passage will be paid to Auckland. Actual transit expenses of the organizer will be paid while she is engaged in her duties. The sum of £50 a year will be paid towards board and lodging expenses. The engagement is to be for a term of three years.

Applicants should have had considerable experience as teachers of Domestic Science, and have held positions requiring organization and the successful exercise of authority.

The duties of the organizer will be: (1) To take charge (under the Supervisor Manual Training and Technical Education) of the teaching of Domestic Science subjects in the Primary, District High, and Technical Schools of the Board; (2) To organize course of instruction in Domestic Science subjects; (3) To inspect and report upon all classes in Domestic Science subjects under the Board; (4) To assist in the training of Teachers of Domestic Science and to give model lessons for their benefit; (5) To hold special meetings for Mothers in the Country Districts for the object of obtaining their co-operation, so that the teaching of Domestic Science may be made as far-reaching as possible.

Forms of application and further information may be procured from Miss Alice Ravenhill, Professor of Home Economics, Utah Agricultural College, Logan, Utah. Applications must be returned in duplicate not later than January 31, 1918.

THE
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SOME ESSENTIALS TO A SAFE DIET¹

E. V. MCCOLLUM

School of Hygiene and Public Health, Johns Hopkins University

In my association during the summer in Washington with the various women in the field of home economics who were working in association with the Food Administration, I saw a great many charts and illustrations regarding comparative food values, and I was struck particularly with one type of product which came from various sources. I refer to such charts as illustrate the cost of a hundred calories of energy or the cost of a pound of digestible protein. In such charts we find invariably that for a dollar one can purchase the greatest amount of energy in the form of one of the cereal grains or their milled products, depending upon the market price at the particular time. The cheapest energy foods are those that are derived from the cereal grains.

Now what effect will the distribution of such illustrative matter broadcast over the land have upon the dietary habits of the people of the United States at the present time? I think the answer is clear. Never before has the cost of foodstuffs risen to the present point. It is taxing very seriously the budget of numerous households to meet the food requirements of the family. I feel that there is an element of danger in giving the housewife this information without supplementing it with further advice to enable her to make a wise selection of food so that her list of purchases will provide a safe diet.

I am told that the recent rise in the price of milk in some of the large cities has already reduced the consumption of milk by the people. Un-

¹ Reprinted from *The Annals of the American Academy of Political and Social Science*, vol. 74, Nov. 1917, *The World's Food*.

der the stress of poverty the list of foods purchased becomes restricted and more and more the tendency is to use principally wheat bread, corn bread, oatmeal, rice, peas, and beans, or dishes prepared from these, so that the diet becomes derived almost wholly from the seeds of plants. The charts of food values to which I have referred encourage women who are alert and anxious to study the food problems, to buy just such a list of foods as that enumerated. Milk and green vegetables do not appear to the average housewife to be economical purchases because they contain much water and do not compare favorably, pound for pound, with the dry cereal grains.

MILK AND GREEN VEGETABLES IMPERATIVE

It is so important that the diet should contain a certain amount of milk and green vegetables because of the special values which these possess from the dietary standpoint, that I want to place special emphasis upon this point and, furthermore, I want to show you why a diet consisting too largely of cereal grains will not induce optimum nutrition.

There has long prevailed, in the discussions of matters relating to nutrition, the idea that the essential constituents of the normal diet are protein, carbohydrates, and fats, and certain inorganic salts. Since the organic constituents named all furnish energy when they are oxidized, the idea has prevailed that the proportions between the carbohydrates and fats in the food is a matter of little importance. This idea is correct. The Eskimo eats little carbohydrate and much fat, while people in the temperate regions eat relatively very much less fat. It is a common misconception, however, that the people in the warmer regions of the world do not eat liberally of fats. They consume much more fats than do the peoples living in the temperate regions. This is purely a matter of convenience and came about through the relative abundance in the tropics of oil-rich fruits and nuts. The temperate regions produce the cereals and other crops which are with few exceptions rich in carbohydrates and poor in fats. Man has adapted himself to the character of the foods which he has found available, and through long usage certain dietary habits have become fixed.

There has been much importance attached to the protein content of the diet, and justly so. I shall not attempt to discuss the merits of the high or low protein diet. Practically all students of nutrition are now agreed that a fairly liberal supply of protein in the diet tends to promote

good nutrition better than an amount which closely approximates the physiological minimum. Furthermore, this aspect of nutrition is so well appreciated that it receives the attention of all who concern themselves with the planning of rations.

One of the dietary factors which should be given attention is the inorganic or mineral content. The research of the last few years has brought to light an importance of this part of the food which was not hitherto suspected.

Another fact of the greatest importance in enabling us to plan adequate dietaries is the knowledge that there exists two substances the natures of which are still unknown which must be present in the diet if an animal is to grow or long maintain a state of health. The existence of one of these has been appreciated only about four years and the other but two. Although we do not know much about the natures of either of these substances we have definite and fairly adequate knowledge regarding where they can be found.

One of those substances is especially abundant in milk and it is fairly abundant in the leaves of plants, but almost without exception is deficient in the seeds of plants. Butter fat is one of the best sources of it. Egg fat is also an excellent source of it. This substance is in these particular kinds of fats and in the leaves of plants, but not in the seeds in adequate amounts.

The second unknown is everywhere abundant except in the following list of foods: polished rice, fats from either animal or vegetable sources, sugars, and starches. None of these contain this second food element.

Under ordinary conditions when we take a diet of seeds, or seeds and vegetables, or seeds and milk, or seeds and meat, we get an abundance of the second substance, but we are in more or less serious danger of running a little short of the dietary essential which is not abundant in the seeds but is associated with the leaves and is present in large amount in milk.

There are several cases in the literature of medicine which indicate that serious consequences have actually arisen in Japan and Denmark, due to a specific shortage of that particular unknown thing which is so abundant in butter fats and in milk and in egg fat and in the leaves of plants, but not in the seeds. Up to recent times the practice in Denmark was to feed children on milk containing a moderate amount of fat, but since the introduction of the milk separator, which is very efficient in

taking out practically all the fat of milk, a physician named Bloch at Copenhagen has observed about forty-five cases, in the last five years, of children in the country who were fed on separator milk and vegetable food, who suffered from eye troubles. The eyes become swollen, inflamed and infected, and blindness results unless something is done to correct the faulty diet. The introduction of whole milk causes an immediate response and recovery, providing the eyes are not too badly injured.

During times of famine among the vegetarian people of Japan, hundreds of cases have been recorded of this pathological condition of the eyes in young children; and curiously enough, a certain Japanese physician named Mori has pointed out that the eye trouble in these vegetarian children is cured by giving them chicken livers. As a matter of fact, other livers would cure them just as well. They could be cured just as well with butter fat or eggs.

Another type of malnutrition due to a lack of an unappreciated, unidentified dietary factor is a disease, found in the Orient, that is due to a lack of the second unknown to which I have referred. This is widely distributed in many kinds of food but is nearly absent from polished rice, and this disease which is called beri-beri occurs among those people who eat polished rice as the principal article of diet. The principal feature of this deficiency disease is general paralysis.

One of the most important things to realize is that the chemical analysis of foodstuffs, no matter how complete or by whom made, cannot give the slightest evidence as to the biological values of the foods. Such knowledge can be gained only by properly conducted feeding tests. I have during the last five years perfected a systematic procedure which involves a series of feeding experiments, and which yields results which constitute a *biological analysis* of food stuffs. Briefly, the principle is as follows: a single natural food in a wholesome condition is fed as the sole source of nutriment and then with single or multiple additions of isolated food factors. This will be clear from a simple illustration. If we represent protein by P, inorganic salts by S, the unknown dietary substance associated with certain fats and with the leaves of plants by A, and the remaining unidentified dietary factor by B, the dietary properties of a foodstuff, as the maize kernel, are determined by feeding maize in the following ways:

- | | |
|------------------|---------------------------|
| 1. Maize alone | 8. Maize + P + B |
| 2. Maize + P | 9. Maize + S + A |
| 3. Maize + S | 10. Maize + S + B |
| 4. Maize + A | 11. Maize + A + B |
| 5. Maize + B | 12. Maize + P + S + A |
| 6. Maize + P + S | 13. Maize + P + S + B |
| 7. Maize + P + A | 14. Maize + P + S + A + B |

Only rations 12 and 14 in this series will adequately nourish an animal during growth. This shows that there are three ways in which the maize kernel is deficient, *viz.*, its proteins are not of very satisfactory character; it lacks a sufficient amount of the unknown factor A, and it is too poor in certain inorganic salts to support physiological well-being in a growing animal. What I have said about the maize kernel can be said almost without qualification for the other most important cereal grains—wheat and oats, and other common seeds. Since the dietary properties of various seeds are about alike their mixtures are but little better than the single seeds fed as the sole source of nutriment. The seeds are perfectly good foodstuffs so far as they go but we should recognize their deficiencies and see to it that they are combined with such other foods as will make good their shortcomings. Chief among the foods which correct the deficiencies of the seeds are milk, and the leaves of plants such as cabbage, lettuce, spinach, cauliflower and such other leaves as are appetizing as greens. The tubers such as the potato and sweet potato possess a certain amount of corrective character, but are distinctly poorer than the leaf of the plant.

Why do milk and leaf-vegetables make good the dietary deficiencies of the seeds? It is because they are especially rich in those mineral elements, such as calcium, sodium and chlorine, in which the seeds are deficient. They are rich in the unidentified factor A which is abundant in certain fats and in leaves but, with few exceptions, not in seeds, and their proteins supplement those of the seeds so as to enhance their value.

Whereas an animal can live but a short time when fed oats alone, a mixture of rolled oats, 60 per cent, and a flour made from immature alfalfa leaves, 40 per cent, constitutes a fairly satisfactory monotonous diet from infancy to adult life. Normal development cannot be secured on any mixture of seeds as a restricted diet, but combinations of leaf with seed are in many cases fairly satisfactory.

There are at the present time thousands of people of the working classes in the south who are suffering from a disease known as pellagra.

Dr. Goldberger of the Bureau of Public Health in Washington has demonstrated that the disease is the result of a faulty diet.

A year ago, owing to the high cost of foodstuffs, there were several people especially interested in home economics who made inquiry into the question as to what was the least expenditure of money on which a self-respecting human being might expect to be well nourished. There was such a group of investigators in Chicago, and after careful inquiry they decided that in Chicago about forty cents a day was the lowest expenditure on which an adult could be reasonably well nourished.

While that investigation was going on, Mrs. Dewey made an investigation of the insane hospitals and state prisons of New York, and found that they were feeding the prisoners and insane patients in that state on about eleven and six-tenths cents a day.

Dr. Goldberger has produced experimental pellagra in human beings on a diet supplying an abundance of energy and affording considerable variety, but derived too largely from seeds. The governor of one of the southern states agreed to pardon any convict in the state penitentiary who would volunteer to eat such a diet as Dr. Goldberger might prescribe until he chose to discontinue the experiment. There were eleven of them who took the chance.

He kept these men in the country on a sunny slope under ideal hygienic conditions. They were given dishes prepared from the following list of foodstuffs: bolted wheat flour, corn meal, oatmeal, corn starch, sugar, syrup, bacon fat, cabbage, collards, turnip greens, and sweet potatoes.

After five and a half months five of the eleven men in this experimental group showed distinct signs of pellagra. In some of the insane hospitals and orphanages of the south where formerly there was a high incidence of pellagra, Dr. Goldberger found the disease to disappear when an adequate diet was supplied. I venture to say that the trouble with the diets of the people in these regions is the very high percentage derived from the seeds of plants or products made by milling or polishing the seeds. There is an element of danger in restricting the diet of either man or animal too largely to products of this class.

Dr. Goldberger has pointed out that the diet of many of the poor people of the south consists in winter of corn bread, salt pork, and molasses. This they eat with little variety in the way of other additions, and by the end of winter come down with the disease. From what I

have said of the nature of the dietary deficiencies of the seeds the nature of the deficiencies of the pellagra-producing diets is fairly clear. The fault does not lie in any one dietary deficiency but in poor quality with respect to several factors.

The greatest nutritional problems before us now are two in number. First we must find a way to provide the leafy vegetables at moderate prices to the people of our cities. These foods should be the least expensive of all. They are great producers and are easily handled, but because of their tendency to spoilage the present system of marketing renders them a hazardous class of foods for the retail dealer to handle and the prices are accordingly exorbitant. One of the greatest boons which could possibly come to the poor people throughout the world would be the discovery of a plant which is a good agricultural crop, whose leaves are not fleshy, but of a character which permits their being promptly dried in the sun as are our hay crops, and the immature leaves of which could be converted into a flour with good keeping qualities. Such a leaf must be free from tannins and other bitter principles and so nearly tasteless that it could be incorporated with wheat flour to the extent of 20-25 per cent without destroying the pleasant favor of the wheat loaf. Such a bread would have dietary properties vastly superior to any variety of dishes derived from wheat, corn, oats, and rice when prepared without the use of milk and taken without sufficient vegetables to correct their deficiencies.

If such a plant can be found and the public educated to the regular use of such a mixed flour the health of all peoples who live on a restricted diet would be greatly improved. Since high ideals, ambition, and aggressiveness are promoted by physiological well being, the gain to society would be very great indeed. I have the hearty coöperation of Mr. Fairchild of the Bureau of Plant Industry in securing plants which may meet these requirements.

The second fundamentally important dietary problem with which we have to deal is the preservation of the dairy industry. The prices of feeding stuffs have gone up 100 to 200 per cent while the price of milk has advanced only about 20 per cent. Such a condition makes milk production unprofitable and will lead, if not remedied, to an abandonment of the dairy industry. Such an event would be a misfortune of the gravest consequences to the public health. We have long been accustomed to the use, in cookery, of milk in liberal amounts and of cream,

butter, and cheese. It is not generally appreciated that these articles have a dietary value far greater than can be expressed by their protein and energy content. They act as correctives for the deficiencies of the cereal grains, and without them the nutrition of our people will suffer serious impairment.

The nation-wide cry against further advance on the cost of milk is unjust and dangerous. The cost of milk must go up and up so far as is necessary to insure that the dairy industry shall remain a paying one.

The only alternative in dietary practice which can maintain the health and efficiency of our population is the adoption of a new type of diet derived in suitable amount from leaf flour. This, however, involves still unsolved problems and cannot at once be put into effect. The only product which can in some measure meet the requirements is the flour prepared from the alfalfa leaf. It is not entirely satisfactory as a human food but baking tests made in the departments of home economics at several universities have shown that 10-12 per cent of alfalfa leaf flour can be used with wheat flour without affecting perceptibly the physical properties of the wheat loaf. Bread prepared from mixed flour of this character is slightly green but does not differ greatly from whole wheat bread in taste. More than 12-14 per cent of the leaf produces a slightly astringent taste which renders the product less acceptable to the human palate. A better leaf flour should be found for this purpose and I believe this will be accomplished before long. Such a leaf would not, however, do away with the need of milk and its products. The appetizing nature of these and their capacity in culinary practices of conferring palatability upon other foods make them foods for which there can be found no substitutes.

The mixed seed and leaf flour which I have described will serve only as a cheap and safe food for those whose earnings do not permit the use of foods other than the cheapest, *viz.*, the seed products, molasses, etc. For these, meats do not form efficient dietary supplements and their purchase is not logical. We could entirely dispense with meats without suffering any ill effects whatever, but if we permit the use of milk, even in the diet of adults, to fall much below the present consumption, its effects will soon become apparent in our national efficiency.

INCREASE IN LIVING COSTS

HELEN COOMBS

Head of the Household Arts Department

AND

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The following interesting data on the cost of living in Buffalo, and its increase from September, 1912, to September, 1917, compiled by the Department of Household Arts of the State Normal School of Buffalo, New York, may be of value as a basis of comparison for other communities as well.

Comparison of cost of foods

ITEM	SOURCE	PRICE SEPTEMBER 1912	PRICE SEPTEMBER 1917	INCREASE PER CENT
Mill Products	Washburn Crosby Co.			
Flour				
White.....		\$7.50 bbl.	\$14.75	96.66
Graham.....	J. N. Adam & Co.	.04 lb.	.10	150.0
Whole Wheat.....		.04 lb.	.10	150.0
Rye.....		.04 lb.	.10	150.0
Cornmeal.....		.025 lb.	.07	180.0
Average				145.33
Sugar	Plimpton Cowan Co.			
White.....		\$.05 lb.	\$0.0925	85.0
Brown.....		.05 lb.	.09	80.0
Confectioners.....		.0475 lb.	.095	100.0
Average				88.33
Bread	Collins Bakery			
White.....		\$0.02 oz.	\$0.03	50.0
Graham.....		.05 lb.	.0775	56.5
Average				53.25
Fats	C. M. Lorish			
Butter.....		\$0.30 lb.	\$0.52	73.33
Lard.....		.13 lb.	.28	115.33
Crisco.....		.25 can	.40	60.0
Butterine.....		.22 lb.	.35	59.0
Olive oil.....		.75 qt.	1.00	33.33
Wesson oil.....		.25 can	.40	60.0
Average				66.82

Comparison of cost of foods—Continued

ITEM	SOURCE	PRICE SEPTEMBER 1912	PRICE SEPTEMBER 1917	INCREASE PER CENT
Milk and cream	Queen City Dairy Co.			
Milk.....		\$0.07 qt.	\$0.11	57.14
Cream.....		.08 $\frac{1}{2}$ pt.	.13	62.5
Average				59.82
Fish	Buffalo Oyster Co.			
Halibut.....		\$0.25 lb.	\$0.28	12.0
Yellow pike.....		.18 lb.	.22	22.22
White.....		.20 lb.	.25	25.0
Perch.....		.12 lb.	.22	83.33
Oysters.....		.35 qt.	.50	42.85
Average				37.08
Meat	J. Bidell			
Veal				
Cutlet.....		\$0.20 lb.	\$0.40	100.0
Loin chop.....		.14 lb.	.34	142.85
Average				121.425
Beef	J. Bidell			
Round.....		\$0.16 lb.	\$0.28	75.00
Porterhouse.....		.22 lb.	.32	45.0
Rib roast.....		.14 lb.	.23	64.20
Average				61.4
Mutton	J. Bidell			
Loin chop.....		\$0.19 lb.	\$0.28	47.3
Leg.....	Kamman Co.	.15 lb.	.23-.28	86.66
Average				66.98
Pork	Kamman Co.			
Loin.....		\$0.22 lb.	\$0.42	90.9
Ham.....		.25 lb.	.40	60.0
Bacon.....		.20 lb.	.39	95.0
Salt Pork.....		.14 lb.	.36	157.1
Average				100.75
Poultry	Menges Market			
Chicken.....		\$0.20 lb.	\$0.31	55.0
Fowl.....		.16 lb.	.31	93.75
Turkey (cold storage)....		.28 lb.	.35	25.0
Average				57.916
Average increase for meat and poultry				81.69

Comparison of cost of foods—Concluded

ITEM	SOURCE	PRICE SEPTEMBER 1912	PRICE SEPTEMBER 1917	INCREASE PER CENT
Vegetables	Trost Grocery			
Canned, 1 lb. 8 oz. cans				
Tomatoes.....		\$0.15 per can	\$0.20	33.33
Peas.....		.12 per can	.18	50.0
Corn.....		.12 per can	.18	50.0
Beans				
Green.....		.12 per can	.18	50.0
Butter.....		.12 per can	.18	50.0
Lima.....		.12 per can	.20	66.66
Baked.....		.10 per can	.18	80.0
Average.....				54.28
Tea	Grand Union Tea Co.			
Standard Grades.....		\$0.40 lb.	\$0.50	25.0
Spices.....		.40 lb.	.60	50.0
Eggs	Trost Grocery			
Western.....		\$0.18 doz.	\$0.45	150.0
State.....		.20 doz.	.60	200.0
Fancy Henny.....		.28 doz.	.65	132.14
Average.....				160.71

Comparison of cost of clothing

ITEM	SOURCE	PRICE SEPTEMBER 1912	PRICE SEPTEMBER 1917	INCREASE PER CENT
Goods by the yard	Flint & Kent			
Cotton				
Berkley cambric.....		\$0.25 yard	\$0.45	80.0
Sheeting 2½ yards wide.....		.35 yard	.70	100.0
Pillow case 45 inch....		.20 yard	.35	75.0
Fruit of the loom.....		.11 yard	.22	100.0
Longcloth.....		.15 yard	.30	100.0
Khaki cloth.....		.25 yard	.50	100.0
Flannelette.....		.12 yard	.24	100.0
Nainsook.....		.20 yard	.30	50.0
Average.....				88.1

Comparison of cost of clothing—Continued

ITEM	SOURCE	PRICE SEPTEMBER 1912	PRICE SEPTEMBER 1917	INCREASE PER CENT
Linen	Flint & Kent			
Table cloth.....		\$1.00 yard	\$1.50	50.0
Napkins per doz.....		2.00	3.00	50.0
Butcher's linen.....		.40 yard	.60	50.0
Linen 1½ yards wide....		1.00 yard	2.00	100.0
Handkerchief linen.....		.50 yard	1.00	100.0
Glass toweling.....		.18 yard	.25	40.0
Huck toweling.....		.50 yard	.75	50.0
Average				62.68
Worsted and woollens	Adam Meldrum & Anderson Co.			
Broadcloth.....		\$2.00 yard	3.00	50.0
Serge.....		1.25 yard	2.00	60.0
Woollens.....		1.00 yard	1.50	50.0
Woollens.....		1.25 yard	2.00	60.0
Average				55.0
Velvets	Adam Meldrum & Anderson Co.			
Chiffon (silk) 42 inches		\$3.50 yard	\$5.25	50.0
Plush (silk) 32 inches....		5.00 yard	7.50	50.0
Velvet (cotton back) 18 inches.....		1.50 yard	2.25	50.0
Velvet (linen back) 20 inches.....		2.50 yard	3.75	50.0
Average				50.0
Findings	S. O. Barnum & Son			
Thread, cotton.....		\$0.50 doz. (200 yds. each)	\$0.50 (150 yds.)	25.0
Thread, silk, true.....		.10 (spool 100 yds.)	.12 (100 yds.)	20.0
Needles.....		1.33 for 40 packages	1.60	20.3
Pins.....		.40 doz. pkg. (300 pins)	.43 doz. pkg. (160 pins)	100.0
Seam binding.....		1.20 doz.	1.55	29.16
Buttons				
Pearl.....		.40 gross	.55	37.5
Bone.....		.33 gross	.60	81.8
Average				44.82

Comparison of cost of clothing—Concluded

ITEM	SOURCE	PRICE SEPTEMBER 1912	PRICE SEPTEMBER 1917	INCREASE PER CENT
Women's				
Shoes.....	Flint & Kent	\$5.50	\$8.00	45.45
Underwear.....	Hengerer Co.	2.00	3.00	50.0
Stockings.....		.50	.75	50.0
Rubbers.....	Flint & Kent	.75	.75	
			(poorer)	
Men's				
Shoes.....	A. Alexander, N. Y.	7.00	12.00	71.4
Collars.....	Desbecker Bros.	.15 each	.20	33.3
		0.25	.35	40.0
		(for 2)	(for 2)	
Shirts.....		1.00	1.25	25.0
Underwear				
Lisle.....		2.50	3.50	40.0
Wool.....		13.50 doz.	24.00	77.7
Cotton.....		.50 each	.75	50.0
Cotton.....		1.00 each	1.25	25.0
Cloth for suits*				
Serge No. 3192.....		1.125	1.675	48.8
Standard Clay 16 oz.				
No. 200.....		1.40	2.00	42.8
Washington Serge No. 814		1.325	1.90	43.39
Average				45.92

* On account of the wide variations in quality, and in the styles from year to year, it was impossible to gather reliable data concerning "ready to wear" clothing for either men or women. All dealers report considerable increase in the price of ready made clothing, with steady depreciation in quality and workmanship. No all wool suits will be sold next spring.

Comparison of cost of shelter and operation

ITEM	SOURCE	PRICE, 1912	PRICE, 19 7	INCREASE PER CENT
Rent—House or apart- ment.....	O. L. Pease	\$40.00	\$45.00	12.5
	J. M. Keeler	30.00	35.00	16.6
	M. Zimmerman	35.00	40.00	14.28
	M. Bull	50.00	65.00	30.0
	R. Schley	60.00	70.00	16.6
	H. Holbrook	20.00	25.00	25.0
Average				19.16
Board and room, noonday lunches no longer in- cluded.....	Student Commit- tee on board for	\$4.00	\$5.00	25.0
	B. N. S.	5.00	6.00	20.0
		6.00	8.00	33.3
Average				26.1
Table Board.....	Miss Murphy	\$4.00	\$5.00	25.0

Comparison of cost of shelter and operation—Concluded

ITEM	SOURCE	PRICE 1912	PRICE, 1917	INCREASE PER CENT
Domestic help				
Cook.....	Cafeteria (B. N. S.)	\$9.00	\$13.00	44.4
Helpers.....		5.00	7.00	40.0
General housework.....	E. L. Bishop	4.00	6.00	50.0
Average				44.81
Coal				
Stove coal.....	D. J. Stickney	\$6.80	\$8.40	23.5
Egg.....	Coal Co.	6.80	8.15	19.9
Average				21.7
Taxes*	City Treasurer: Tax bills for 109 Norwood Ave. Locality settled for many years. Comparatively stable conditions.			
Assessed valuation.....		\$5685.00	\$6730.00	18.40
Tax rate.....		22.48	21.678	
Tax.....		127.85	147.36	15.2

*Variations in the tax rate from year to year change this item to a marked degree. Rate in 1916 was \$29.44 per thousand, and valuation \$5900, making the increase over 1912 of 37.8 per cent. Assessed valuation has steadily increased.

Comparison of wages, non professional

OCCUPATION	SOURCE	WAGES SEPTEMBER 1912	WAGES SEPTEMBER 1917	INCREASE PER CENT
Metal Workers	Holly Manufac- turing Co.			
Pattern makers.....		\$0.375 hr.	\$0.75	100.0
Electricians.....		3.40 day	5.00	47.0
Moulders.....		3.60 day	4.75	31.9
Machinists.....		.35 hr.	.475	35.7
Plumbers.....	Builders Exchange	4.50 day	5.50	22.22
Steel workers.....			30-50 per cent	40.00
Average				46.13
Other workers				
Carpenters.....	E. C. Leeder	\$ 0.45 hr.	\$0.625 hr.	38.88
Farm hands.....	Farmers near Ham- burg, N. Y.	30.00 and house	50.00 and house	66.66
Bricklayers.....	Employers Bureau	.60 hr.	.75 hr.	25.0
Laborers.....		.20 hr.	.40 hr.	100.0
Plasterers.....	Bishop	3.50 day	4.50 day	28.5
Average				51.80

Summary

Food	Increase per cent
Mill products.....	145.33
Sugar.....	88.33
Bread.....	53.25
Fats.....	66.82
Milk.....	59.82
Fish.....	37.08
Meat and poultry.....	81.69
Tea.....	25.00
Spices.....	50.00
Eggs.....	160.71
Canned vegetables.....	54.28
Fresh vegetables*.....	131.7
Fruits*.....	71.33
Total average.....	78.87
Clothing and cloth	
Cottons.....	88.10
Linen.....	62.68
Wools.....	55.00
Velvets.....	70.00
Findings.....	44.82
Average materials.....	60.12
Average men's and women's "ready to wear".....	45.92
Total average, all items cloth and clothing.....	53.02
Shelter and operation	
Rent.....	19.16
Board and room.....	26.10
Table board.....	25.00
Domestic help.....	44.81
Coal.....	21.675
Taxes.....	15.2
Total average.....	25.32
Building materials*	
Lumber.....	44.44
Plumbing.....	55.55
Brick.....	25.00
Iron and steel.....	69.00
Glass.....	200.00
Total average.....	78.79
Miscellaneous*	
Drugs.....	123.28
Soaps.....	51.66
Paper.....	100.00
Gasoline.....	43.70
Average, incidentals.....	79.66
Average increase in cost of living, 1912-1917, Buffalo, N. Y.....	63.13
Average increase in wages, not including professional salaries, 1912-1917.....	48.96

* The tables for fresh fruits and vegetables, building materials, and miscellaneous have been omitted but will be included in the reprints of this article.

A CHEAP HOMEMADE SOY-BEAN MEAL FOR DIABETICS¹

LYDIA J. ROBERTS

University of Chicago and Central Free Dispensary

ELIZABETH W. MILLER

University of Chicago

In attempting to plan diabetic diets that could be prepared at home by dispensary patients, one of the first problems that confronted us was to find a substitute for bread, which would be cheap and palatable and yet low in available carbohydrate. There is no food which diabetics find it so difficult to do without as bread. For this reason it seems worth while to offer the results of our experiments in the preparation of a product which would meet this need.

A number of possibilities suggested themselves, and various ones were tried. Gluten flour has been widely advertised for use in the making of diabetic breads; but though it was found possible to make an acceptable gluten loaf fairly low in carbohydrate these flours were finally abandoned as unwise to use: first, because of the excessive prices of the commercial brands; second, because of their variable composition and unreliability;² and third, because of the products yielded by gluten in digestion. Dr. Janney's investigations³ show that gluten gives rise to a high per cent of glucose when fed to phlorizinized dogs, and hence may be little, if any, better for diabetics than ordinary white flour. In view of these facts it was necessary to look to other sources than gluten for our flour.

Almond meal is another product used in many hospitals for making diabetic muffins; but here again the meals on the market are high in price and variable in composition;² and with almonds selling at a dollar a pound, homemade almond meal was also out of the question.

Soy-bean meal presented another possibility. Various assimilable diabetes recommend its use because of the low per cent of writers on carbohydrate which the beans contain; Joslin⁴ advises Hepco Flour,⁵ a soy-bean product, in his diets. We procured some of this flour, as well

¹ This work was done at The University of Chicago as a problem in experimental cooking.

² Reports of Conn. Agr. Exp. Sta., New Haven, Conn. Food Products and Drugs. 1913, Sec. 1, Diabetic Foods.

³ Glucose Formation from Protein in Diabetes. N. W. Janney, *Trans. Col. Phys., Phil.*, 1916, [3] 38, 168 *Arch. of Intern. Med.*, 1916, 18, 584.

⁴ Treatment of Diabetes Mellitus. Joslin, Lea, and Febiger. Philadelphia, 1917, p. 531.

⁵ Manufactured by Waukesha Health Products Company, Waukesha, Wis.

as several other commercial soy-bean flours,⁶ and found that they made satisfactory muffins which our patients would gladly eat. Once more, however, the price was prohibitive, for these flours cost from 50 to 75 cents per pound. The manufacturers kindly offered us better prices for dispensary distribution, but even a liberal discount did not make them cheap enough to meet our need.

We decided, therefore, to make our own flour. We purchased a variety of yellow soy-beans from a local grocer at 3 pounds for 25 cents, and ground them through an ordinary hand coffee mill. The product was a fine meal closely resembling some of the commercial samples of soy-bean flour. It had, however, a raw "beany" taste which it retained after being made into muffins. This was easily removed, by a preliminary cooking that might be done in any one of several ways. The beans could be partially cooked in water, dried in a moderate oven, and then ground into meal; or they could be soaked in water over night, dried and parched to a light brown in the oven, and then ground. A third method, finally settled on as the simplest, was to grind the raw beans, spread the resulting meal thinly and evenly in pans, and brown it lightly in a moderate oven, stirring often to prevent scorching. This meal made muffins pleasing in appearance and flavor, almost—if not quite—equal to the ones made from the expensive meals; and it cost but $8\frac{1}{3}$ cents per pound, not counting labor and fuel.

It is important to know at least approximately the composition of all foods included in a diabetic diet. Since we did not have the exact analysis of the beans used, we took the average composition of many varieties as given by Street and Bailey:⁷

WATER	ASH	PROTEIN	FAT	NITROGEN FREE EXTRACT	FIBER
10	5.54	38.29	14.89	26.64	4.64

Our meal was made from the whole bean; we, therefore, tentatively assumed this to be its composition. Analysis of the nitrogen free extract made by Street and Bailey⁷ show it to consist almost entirely of galactans, pentosans, and other non-assimilable carbohydrates, and to contain but 8.15 per cent of possible sources of glucose (starch, dextrin, and sucrose).

⁶ Soya Bean Meal. Theo. Metcalf Company, Boston, Mass.

Cereo Gruel Flour. Cereo Company, Tappan, N. Y.

⁷ Carbohydrates and Enzymes of the Soy-bean. Street and Bailey, *Jour. Indus. and Eng. Chem.*, 1915, 7, 853.

For our purposes, therefore, we considered the meal as containing roughly 38 per cent protein, 15 per cent fat, and 8 per cent carbohydrate. Computing the muffin recipe on the basis of these figures we found its food value to be:

Food value of soy bean muffins

	PROTEIN	FAT	CARBOHY- DRATES	FUEL VALUE
	grams	grams	grams	calories
Meal, 70 grams.....	27	10.5	5.6	225
Eggs, ⁸ 1.....	6	6.0		78
Butter, 26 grams.....		22.0		198
	33	38.5	5.6	501

This made into twelve small muffins gives each about 3 grams protein, 3 grams fat, $\frac{1}{2}$ gram carbohydrate, and about 40 calories. Or we could, if we desired, make the recipe into six muffins each of which would contain 5.6 grams of protein, 6 grams of fat, less than 1 gram of carbohydrate, and about 80 calories. In other words, they would have practically the same food value as Joslin's Hepco cakes⁹ each of which he considers as equivalent to one egg containing 6 grams of protein and 6 grams of fat.

It would seem then that this homemade soy-bean flour has solved our problem, since from it can be prepared a substitute for bread which is palatable, cheap, and low in available carbohydrates.

Directions for making muffins and griddle cakes together with a number of other suggestions for using the meal follow. In addition to experimenting with the soy meal we also tried out various recipes to determine satisfactory methods of cooking the beans and to learn what other foods and flavors included in the diabetic diet combine well with them. We give the results of our findings, not as specific recipes for the most part, but merely in the form of suggestions as to flavor combinations and uses of the beans which we found to be most palatable. A number of these ideas were suggested by, or adapted from, a series of soy-bean recipes worked out by Miss Ethel Kolbe at The University of Chicago two years ago.

⁸ The diabetic clinic of the Central Free Dispensary in computing diets considers the average egg as containing 6 grams of protein and 6 grams of fat.

⁹ Cf. note 4.

USES OF THE MEAL

SOY-BEAN MUFFINS

Soy-bean meal, $\frac{3}{4}$ cup (70 g.; 2.5 oz.)

Baking powder, 1 teaspoon

Salt, $\frac{1}{4}$ teaspoon

Eggs, 1

Water, $\frac{1}{2}$ cup (100 cc; 4 oz.)

Butter, 2 tablespoons (26 g.; 1 oz.)

Spread in a pan the meal prepared by grinding raw beans, and brown lightly in a moderate oven, stirring often to prevent scorching.

Sift the dry ingredients. Beat the yolk, add the water, and stir this mixture into the meal. Add the melted butter and fold in the stiffly beaten egg white. Pile lightly into six oiled muffin tins and bake in a moderate oven.

It is better to do the mixing with a fork, as the meal easily forms a heavy compact mass. The one-half cup of water is merely an approximate amount. Enough should be used to make the mixture about as soft as it can be and yet keep its shape when dropped into the pans.

As stated before each muffin contains about 6 grams of protein, 6 grams of fat, 1 gram of carbohydrate, and yields about 80 calories.

Recipe for and food value of soy-bean griddle cakes

	PROTEIN	FAT	CARBOHY- DRATES	FUEL VALUE
	grams	grams	grams	calories
Soy bean meal, $\frac{3}{4}$ cup (70 g.; 2.5 oz.).....	27	10.5	5.6	225
Salt, $\frac{1}{4}$ teaspoon.....				
Baking powder, 1 teaspoon.....				
Eggs, 1.....	6	6		78
Water, $\frac{5}{8}$ cup (about).....				
Butter, 1 tablespoon.....		11		99
	33	27.5	5.6	402

Either raw or parched meal may be used in this recipe.

Sift dry ingredients. Beat the egg, add the water, and combine the liquid with the dry ingredients. Add the melted butter. Bake on a hot greased griddle.

This recipe makes six fair sized cakes. Each contains about 5 grams of protein, 5 grams of fat, 1 gram of carbohydrate, and yields about 65 calories.

Both sweet and sour milk griddle cakes, and also waffles may be made from the meal if milk is allowed the patient. It is necessary to add a

larger amount of egg in the soy meal batters than in ordinary wheat cakes, and to make them somewhat thicker, so that they need a little assistance from the spoon in spreading.

BREAKFAST FOOD

Water, 1 cup
Salt, $\frac{1}{8}$ teaspoon

Soy-bean meal (unparched) 5 tablespoons
($\frac{1}{2}$ cup; 25 g.; 1 oz.)

Heat water and salt to boiling and then stir in the meal gradually. Cook for five minutes over the direct flame, then in the double boiler one hour. Serve with cream as a breakfast food.

This serving contains 10 grams of protein, 4 grams of fat, 2 grams of carbohydrate, and yields about 85 calories.

The parched meal may also be prepared in the same way. The two products look and taste entirely different.

FRIED SOY-BEAN MUSH

Cook the meal as for breakfast food. Mold. Slice, dip in slightly beaten egg, and fry.

SOY-BEAN CRISPS

Water, $\frac{1}{2}$ cup
Salt, $\frac{1}{8}$ teaspoon

Soy-bean meal, $\frac{1}{2}$ cup (25 g.; 1 oz.)

Heat the water and salt to boiling, stir in the meal, and cook till the mixture thickens. This requires but a few minutes.

Put the mush through a large meshed sieve, letting it fall in granules on a baking sheet. Spread lightly with a fork so as not to destroy the granular appearance. Parch in a moderate oven to a rich golden brown. The product looks much like grape nuts, but the granules are not hard. Eaten with cream it makes a very good breakfast food. It may also be used to advantage in place of bread or cracker crumbs in the various scalloped dishes and croquettes.

This amount contains 10 grams protein, 4 grams fat, 2 grams carbohydrate, and yields about 85 calories.

A great number of other recipes were tried, such as cakes, cookies, and puddings.

In general, we found that the meal could be cooked by itself in any simple way, or combined with milk, cream, eggs, and other foods without pronounced flavors. We did not, however, like any of the products

we secured when trying to make sweetened or spiced cakes or cookies; for saccharine, vanilla, chocolate, and spices, all seemed to accentuate the characteristic soy-bean flavor and to make the dishes less palatable.

USES OF THE WHOLE BEANS

The chief objection to the use of the whole beans is the extremely long time it takes to cook them, for it requires eight to ten hours of cooking on the stove to make them tender. After soaking, however, they can, be cooked in thirty to forty minutes in a pressure cooker at 15 to 18 pounds pressure, or in a fireless cooker by putting them in with both radiators over night, and then reheating the radiators and putting the beans back for another half day. Some of the dishes prepared from mashed beans, however, seem better liked if the beans are still hard enough to be somewhat granular, rather than pasty, when mashed. Such dishes are bean croquettes, beans and cheese, and bean loaf as described below. Soaking the beans over night or longer helps to make them cook more easily.

BAKED BEANS

The beans should be soaked twelve to twenty-four hours, and put into the fireless cooker over night before baking. They may then be prepared like ordinary baked beans, with salt pork, seasonings, and hot water to cover them; or by using alternate layer of beans and minced ham with milk for the liquid. They are especially good baked with either salt pork or bacon and sufficient stewed tomatoes or juice to cover.

SALTED SOY-BEANS

Soak the beans over night. Spread on a baking sheet and parch in a moderate oven to a light brown, stirring often. Add butter or oil to coat the beans, sprinkle with salt, return to the oven, and parch to the desired brownness. These have much the appearance of salted peanuts and taste very good.

USES OF MASHED BEANS

The mashed beans may be used in a variety of ways. Seasoned with salt, pepper, and butter; moistened with milk, beaten till creamy, and served hot, they make a very good substitute for mashed potatoes.

If molded while hot they may, when cold, be sliced and sautéd for fried mush. This makes a dish quite different from the fried mush made from the meal.

The mashed beans may also be seasoned, mixed with slightly beaten egg, made into cakes, and sautéd as bean cakes. Or this same bean egg mixture may be shaped into croquettes, dipped in egg, and fried in deep fat.

A good dressing for poultry or meat may be made by seasoning the mashed beans with sage, salt, pepper, onion, and butter and moistening with hot water. This mixture may also be made into an attractive and appetizing bean loaf, by adding a slightly beaten egg to bind it together, and then shaping and baking it.

Another good loaf is made by using beans, egg, salt, pepper, and chopped nut meats with liquid to make it the right consistency. This loaf with or without the nuts becomes bean soufflé if the egg whites are beaten stiff and folded in at the last. A little cheese or chopped green pepper, or both, greatly improve the flavor.

Green peppers stuffed with mashed seasoned beans and baked make a very good dish. A dish prepared by placing alternate layers of mashed beans and grated cheese in a baking dish, covering with milk, and baking in a moderate oven, is particularly good.

Many other hot dishes may be made from the beans and also a variety of salads. The suggestions already given are sufficient to show how materially the soy-bean can help to vary the diabetic's much restricted diet. It seems in fact, as if especially made for diabetics, for its composition is almost ideal; and by using both the meal and the whole beans, substitutes for a large number of foods which diabetics long for—bread, baked beans, potatoes, dressing for meat, macaroni (or rice) and cheese, thickening for soups, breakfast foods—can be made from it. This does not mean, of course, that the soy-bean any more than any other food should be used without restriction. It simply means that if the physician sees fit to allow his diabetic patient a certain amount of soy-beans a day—say 100 grams, which would yield less than 10 grams of assimilable carbohydrate—they can be used in any one or more of the ways given above. The methods of preparing them are so varied that they can be eaten every day in some form or other without the patient becoming tired of them.

Since this paper was written, the dispensary has purchased a large quantity of soy beans. Part of these have been ground by a milling company, and the meal is being sold at cost. The dry beans are also sold. On clinic days a quantity are cooked in the autoclave to be purchased by patients who wish to buy them.

A FOOD CONSERVATION DRIVE IN A HIGH SCHOOL

IRMA GROSS

Central High School, Omaha, Nebraska

As part of the general war work in our school, a Food Conservation campaign was undertaken, modelled after the national plan. The committee in charge consisted of a faculty chairman (the writer), a student chairman, and four student members—one representative from each class.

The drive lasted three days. On the first day, we began the advertising, which consisted of posters and black-board printing. Some of the posters were furnished by the art classes, and some were those of the government. This slogan was featured:

“All you need is self-denial

FOOD CONSERVATION

Give it a trial.”

On the second day girls, wearing cooking aprons and Food Administration caps, distributed in the lunch rooms “Note Book Cards” modelled after the regulation Home Cards, but adapted to high school students.

On the third day there was placed on the desk of each pupil a card pledging the observance each week of 21 wasteless meals, 7 wheatless meals, 10 meatless meals, 2 candyless days, and 1 ice creamless day. The case for Food Conservation was presented in each room by some student, who urged the signing of the pledge card, but asked that it be signed only if the signer intended to keep the pledge. The pledge was purposely made easy, that there might be the minimum of insincerity. The meatless meals were fewer than the Home Card asked, because so many students said it was difficult to avoid meat sandwiches in a lunch brought from home. We made the points that the pledge represented the minimum; that the important thing was to cut down on one's former consumption of the needed staples; and that one particular task of every high school student was to use less sugar.

We had excellent results in the number of pledges signed, many rooms averaging 100 per cent. We hope to do follow-up work in keep-

ing the matter before the students, and in helping them to do more than the minimum asked.

[The latest Home Card asks for nine meatless meals each week as a "minimum of saving."—EDITOR.]

HOARDING

Any person in the United States who buys MORE FOODSTUFFS than he customarily keeps at home in peace times is defeating the FOOD ADMINISTRATION in its purpose to secure a just distribution of food and in its great endeavors to reduce prices. The hoarding of food in households is not only unnecessary, as the Government is protecting the food supply of our people, but it is selfish and is a cause of high prices.

Hoarding always throws a sudden strain on the railway system, and because of our military demands it is with extreme difficulty we can now move the vitally necessary food to markets.

There is much insidious propaganda in the country against food saving and increased production. ALL OPPOSITION TO PRODUCTION AND SAVING IS DIRECT ASSISTANCE TO THE ENEMY.

—U. S. Food Administration.

THE PINTO BEAN

In the semi-arid districts extending over parts of Colorado, New Mexico, Kansas, Nebraska, and Wyoming, there have been raised this year 200,000,000 pounds of pinto beans, a buff-colored bean with reddish-brown spots, a slightly larger bean than the navy and nearly the same shape as the kidney. These are already coming into the eastern market, and have been selling for 11 cents a pound, against 20 cents or more for the navy bean. The pinto is excellent in flavor, cooks as quickly, and in every way is as valuable and satisfactory as the navy. It should not be confused with some colored beans that are hard and difficult to cook.

It should be used wherever obtainable, both because it is cheaper than the navy, and because with encouragement it will be grown much more largely on land not adapted to other varieties of beans. It is an excellent rotating crop with wheat. The beans may be obtained canned. The canned beans have an attractive brown color.

FOR THE HOMEMAKER

HOUSEKEEPING IN WAR TIME

MARY ALDIS

At the outbreak of the war, I had kept house for twenty-three years. I had, I think, kept the house clean and my family happy. I had arranged that they be fed three times a day with meat, vegetables, bread, milk, and fruit, in the customary proportions.

During the period when my children were little, I gave careful thought to what might be called a "balanced ration." With the exception of that period, never having heard of calories or vitamins, I planned meals in cheerful ignorance of any guiding principle but the wishes of the family. At the beginning of my "war-housekeeping," I questioned my family as to whether, during the preceding twenty-three years, they had been satisfied with their meals. They said that they had.

I relate this personal experience only because I imagine it to be typical of a large number of housekeepers, who, like myself, went to school before the study of home economics had been introduced into schools and colleges.

When, last spring, Food Conservation was first talked of, I began, as many another, to question my methods of housekeeping. Inquisitive poking and prying into departments and receptacles hitherto little known save to obtain assurance that they were clean, resulted in a conviction that part of the much-quoted seven hundred million dollars' worth of waste had been taking place in my own kitchen. I endeavoured to institute reforms. There was one dramatic moment when, after much explanation and commands, as unequivocal as I could make them, I fished forth from the garbage can a half slice of bread. Calling my household staff together, I asked who was the guilty one. They looked at each other in an embarrassed fashion and made no reply. I then addressed them in accents befitting the solemnity of the occasion. I told them of my profound discouragement that this could happen after all that I had said to them; when, before their very eyes, hung the sign in red letters,—“To waste a crust of bread is an act of treachery to the nation.” I told them

that should this lamentable thing happen again, I should be obliged to let them all go, as no one seemed willing to accept the responsibility. When I had finished, one spoke. "Please, Ma'am," she said, "I'm thinkin' that's the piece of bread dropped on the floor and the dog wouldn't eat it. What would I be doin' with it, else, Ma'am?"

The matter of waste duly considered, I joined a class in dietetics. Attendance at the first lecture resulted in a worried feeling that the health of my family had for twenty-three years been jeopardized by my criminal lack of knowledge of calories. I inquired of each member his weight, procured my own, and spent some time each day doing sums, to which I was unaccustomed. I may add in passing that during that anxious week, my efforts in their behalf, elicited only merriment from my unsympathetic family.

At the second lecture, the lecturer stated that on an ordinary table, liberally supplied, the relative foods—proteins, carbohydrates, minerals, fats, she called them (I learned them all with pains) were apt to be approximately right. Why, I ask you, didn't she say that at the first lecture?

During June and July I listened to twelve lectures by that enormously clever young woman, and as a result set to work to revolutionize my housekeeping.

There was a sign up in various windows in the town. "Keep House Scientifically; You Will Save Money and Live Better." I invented that sign. In my capacity as Chairman of the local Committee on Food Conservation, I had taken pride in printing this and other red letter pronouncements and hanging them about. Now, it seemed, I was to learn what they meant. At the end of the first month I did not know whether I was glad or sorry that I had not "kept house scientifically" for twenty-three years. A conviction came over me that had I done so, I should never have accomplished anything else.

However, I argued, it was no longer a matter of choice, wherein the family taste, the family pocket book, and possibly the family doctor were the only agents to be consulted. Housekeeping had become a grave national problem; to it must be given the most earnest thought and attention.

Reading in the public press the correlated statements, put day by day in oppressive juxtaposition, that food would decide the war and that women controlled 85 per cent of the food supply, it seemed highly imperative to act and act wisely and quickly.

As a result of the summer's experiments, I submit the following tables. The menus and statements are those of the month of October, 1917. The household numbered an average of six, five regular members, a laundress three days, and occasional guests.

During the month of May, 1917, the cost of food material per capita for the household was one dollar and thirty-one cents. During October, it was, as may be seen, seventy-eight cents. Seventy-five cents per day, per capita, was the amount allowed by the government for the mess of a near-by Officers' Training Camp. I therefore considered that seventy-eight cents was highly creditable. If I seem to express an undue pride in the fact, it is because, with this reduction, my family states that, beyond a stern insistence that all taken be eaten, they have noticed no particular difference entailed by my "war housekeeping."

In spite of the course of lectures, I fear that an expert dietitian would find many things to be criticized in the menus submitted. Two things have, however, been accomplished; a marked saving in beef and mutton and in wheat.

FOOD EXPENDITURE OCTOBER, 1917

Total bills for food

Groceries.....	\$36.64
Meat.....	25.14
Fish.....	12.43
Fruit and vegetables.....	23.56
Milk and butter.....	24.99
Water.....	2.60
Ice.....	8.00
Eggs.....	10.22
	<hr/> \$143.58

Calculated on a basis of six in family.

Total for food per day, \$4.63.

Total per person per day, about 78 cents.

This averages about 25 cents per meal per person for actual cost of foodstuffs. Cost of preparation and fuel is not included.

Amounts of various foodstuffs

- 22½ pounds of beef, 12 ounces per day, averaging 2 ounces per person
- 15 pounds of mutton, 8 ounces per day, averaging 1½ ounces per person
- 18 pounds of pork, 8+ ounces per day, averaging 1½+ ounces per person
- 26 pounds of fowl, 15 ounces per day, averaging 2½ ounces per person
- 1½ pounds of veal
- 83 pounds, total, meat and fowl
- 44 pounds of fish, 23 ounces per day, averaging 4 ounces per person

Note. About half as many pounds of fish used during the month as meat and fowl.

- 17½ dozen eggs, 6+ eggs per day, averaging 1 per person
 21 pounds butter, 12+ ounces per day, averaging about 2 ounces per person
 48 quarts pasteurized milk, 3 pints per day, averaging ½ pint per person
 18 pints cream, averaging ½+ pint per day for six people
 20 quarts skimmed milk (used only for cooking)

Wheat: 25 pounds white flour purchased and used during the month.
 11 large loaves white bread
 1 box crackers.

Sugar: 38 pounds purchased. 20 pounds of this amount were used in preserving home-grown fruit which would otherwise have been wasted. Practically none was used for cake or desserts. Deducting this 20 pounds leaves 18 pounds, or 3 pounds per person per month, i.e., the amount stated as sufficient by the Food Administration.

Fats: 15 pounds Crisco (substitute for lard)
 3 gallons Wesson oil (used as substitute for lard, also salad oil)
 2 pounds butterine.

MENUS FOR TWO WEEKS

SUNDAY, OCTOBER 1

<i>Family table</i>	<i>Kitchen table</i>
<i>Breakfast</i> , 9.00 a.m. Melons, coffee, corn bread, shirred eggs	<i>Breakfast</i> , 8.00 a.m. Same, without melons
<i>Luncheon</i> , 1.30 Smoked salmon on thin bread and butter Broiled lobster, melted butter Vegetable salad Baked apples—Turkish coffee	<i>Dinner</i> , 12.00 Mutton, roasted, green corn, potatoes Melons
<i>Supper</i> , 7.00 Cold mutton, bread and butter, cocoa	<i>Supper</i> None served, all out

MONDAY, OCTOBER 2

<i>Breakfast</i> , 8.00 Melons, eggs, bran muffins, coffee	<i>Breakfast</i> , 7.30 Same, without melons
<i>Luncheon</i> , 1.30 Corned beef hash, creamed onions Brown Betty, with hard sauce	<i>Dinner</i> , 12.00 Same
<i>Dinner</i> , 7.00 Spaghetti, tomato sauce Lettuce salad, cold mutton Fruit pudding	<i>Supper</i> , 5.30 Lettuce salad, white bread, smoked salmon Apple sauce

TUESDAY, OCTOBER 3

<i>Breakfast</i> Oranges, wheatena, French toast, coffee	<i>Breakfast</i> Same, but without fruit
<i>Luncheon</i> None served	<i>Dinner</i> Flank steak, spaghetti, white bread, potatoes, lettuce

Dinner

Black bean soup
 Stewed chicken with rice, string beans,
 white flour rolls
 Apple sauce

Supper

Cold mutton, fried potatoes, tomatoes,
 white bread, tea

WEDNESDAY, OCTOBER 4

Breakfast

Oranges, corn bread, bacon, coffee

Luncheon

Black bean soup
 Rice, rolls

Dinner

Chicken soup
 Steamed finnan haddie on toast with
 cream sauce, baked potatoes
 Lettuce salad, cassava bread toasted

Breakfast

Puffed rice, bacon, corn bread, coffee

Dinner

Black bean soup, minced mutton, string
 beans, rice

Supper

Same, without soup

THURSDAY, OCTOBER 5

Breakfast

Oatmeal, coffee, rolls

Luncheon

None served

Dinner

Chicken soup—white bread
 Mackerel, potatoes, carrots
 Deep dish apple pie

Breakfast

Same

Dinner

Mackerel, potatoes, carrots

Supper

Creamed fish, white bread and butter, tea
 Apple pie

FRIDAY, OCTOBER 6

Breakfast

Eggs, corn bread, coffee, honey

Luncheon

Creamed chicken, white bread
 Fresh tomato with mayonnaise, milk

Dinner

Clear soup
 Stuffed baked tomatoes with bacon
 Roast chicken stuffed with oysters, can-
 died sweet potatoes, white bread
 Melons, coffee

Breakfast

Same

Dinner

Chicken, beans, potatoes
 Fresh sliced peaches, white bread

Supper

Cold corned beef, fried potatoes, white
 bread, cocoa

SATURDAY, OCTOBER 7

Breakfast

Soft boiled eggs, white bread toast, apple
 jelly

Luncheon

Oyster stew
 Tomato with mayonnaise, toasted cassava
 bread

Breakfast

Same

Dinner

Corned beef hash, fried sweet potatoes,
 tomatoes, white bread

Dinner

Chicken soup
 Flounders, hollandaise sauce, boiled potatoes, brown bread
 Apple pudding, with hard sauce

Supper

Black bean soup with hard boiled eggs,
 brown bread

SUNDAY, OCTOBER 8

Breakfast

Melons, creamed fish on toast, coffee,
 doughnuts

Breakfast

Eggs, white bread, coffee

Luncheon

Chicken soup
 Smoked shoulder of pork, baked in milk,
 potatoes, corn
 Sliced tomatoes—French dressing, toasted
 crackers
 Melons Turkish coffee

Dinner

Creamed chicken, potatoes, corn

Supper

Salad, cheese, tea, white bread, apple
 sauce, and doughnuts

Supper

None served, all out

MONDAY, OCTOBER 9

Breakfast

Wheatena, coffee, boiled eggs, graham muf-
 fins, jam

Breakfast

Eggs, toasted white bread, coffee

Luncheon

Cooked tomatoes, corn on cob
 Toasted muffins, cocoa, melons

Dinner

Roast pork, carrots, potatoes, brown bread

Dinner

None served

Supper

Cold pork, fried potatoes, tea

TUESDAY, OCTOBER 10

Breakfast

None served

Breakfast

Eggs, brown bread, coffee

Luncheon

Hamburg steak with onions, brown bread,
 cocoa

Dinner

Same

Dinner

Split pea soup
 Cold sliced pork, tomato salad, white
 bread
 Hot pancakes with honey

Supper

Scrambled eggs, coffee, brown bread

WEDNESDAY, OCTOBER 11

Breakfast

Melons, eggs, corn bread, apple preserves,
 coffee

Breakfast

Eggs, brown bread, puffed corn, coffee

Luncheon

Meat stew (made from left over hamburg)
cocoa

Dinner

Same

Dinner

Plain soup
Broiled fish with salt pork, baked potatoes,
baked tomatoes
Stewed peaches

Supper

Pea soup, bread, butter, tea, stewed apri-
cots

THURSDAY, OCTOBER 12

Breakfast

"Liberty" bread (made with hominy,
potatoes, and $\frac{1}{3}$ as much white flour),
melons, cream cheese, coffee

Breakfast

"Liberty" bread, eggs, coffee

Luncheon

Creamed fish baked, "liberty" bread, pears

Dinner

Fried fish with ham garnish, potatoes and
vegetables

Dinner

Melons
Soup
Hot Swiss chard with hollandaise sauce
Boiled rice—hard sauce

Supper

Boiled unpolished rice with hard sauce,
tea, fruit, "liberty" bread

FRIDAY, OCTOBER 13

Breakfast

French toast, oatmeal, coffee
Orange marmalade

Breakfast

Oatmeal, eggs, coffee, "liberty" bread

Luncheon

None served

Dinner

Mutton stew with onions and vegetables,
pancakes

Dinner

Soup (tomato)
Mutton stew with onions and dumplings
Apple sauce

Supper

Rice with syrup—cocoa

SATURDAY, OCTOBER 14

Breakfast

"Liberty" bread, potato pancakes with
honey, coffee

Breakfast

"Liberty" bread, coffee, eggs

Luncheon

None served

Dinner

Mutton stew with vegetables
Pancakes

Dinner

Creamed vegetable soup
Saddle of mutton, with jelly sauce, pota-
toes, beets
Apple sauce

Supper

Baked beans, "liberty" bread, cocoa

NUTRITIOUS VEGETABLE SOUPS

ELIZABETH SPRAGUE

Head of Department of Home Economics, University of Kansas

The situation which is confronting us today with regard to the shortage of certain of our food products may seem to be strictly a problem of the present period. The quotations below from the essays of Count Rumford apparently might be taken from a current magazine, for they concern grain shortage and methods of meeting it. Benjamin Thompson, afterward Count Rumford, was a New England schoolmaster with Tory sympathies, who fled from this country during the Revolutionary war and became eminent abroad as a scientist, diplomat, and military man. In the latter capacity, he studied methods of feeding large numbers of people at moderate cost. It is interesting to find that his theories, as shown in the following quotations, are as pertinent today as they were then.

It is a common saying that Necessity is the mother of invention; and nothing is more strictly or more generally true. It may even be shown that most of the successive improvements in the affairs of men in a state of civil society, of which we have any authentic records, have been made under the pressure of necessity; and it is no small consolation, in times of general alarm, to reflect upon the probability that upon such occasions useful discoveries will result from the united efforts of those who, either from motives of fear or sentiments of benevolence, labor to avert the impending evil.

The alarm in this country at the present period, on account of the high prices of grain, and the danger of a scarcity, has turned the attention of the country to a very important subject, the investigation of the *science of nutrition*,—a subject so curious in itself and so highly interesting to mankind, that it seems truly astonishing it should have been so long neglected; but in the manner in which it is now taken up, both by the House of Commons and the Board of Agriculture, there is reason to hope that it will receive thorough scientific examination. And, if this should be the case, I will venture to predict that the important discoveries and improvements which must result from these inquiries will render the alarms, which gave rise to them, forever famous in the annals of society. (November, 1795.)

Count Rumford proved by practical feeding experiments, the value of certain types of soups, which have since been successfully used in soup kitchens and school lunches of all countries.

The difference in the apparent goodness, or palatableness and apparent nutritiousness, of the same kind of food, when prepared in different ways, struck me very forcibly; and I constantly found that the richness of *quality* of a soup depended more upon a proper choice of the ingredients, and a proper management of the fire in the combination of those ingredients, than upon the quantity of solid nutritious matter employed—much more upon the art and skill of the cook than upon the amount of the sums laid out in the market.

But what surprised me not a little was the discovery of the very small quantity of solid food which, when properly prepared, will suffice to satisfy hunger and support life and health, and the very trifling expense at which the stoutest and most laborious man may in any country be fed.

After an experience of more than five years in feeding the poor in Munich,—during which every experiment was made that could be devised, not only with regard to the choice of articles used as food but also in respect to their different combinations and proportions, and to various ways in which they could be prepared and cooked—it was found that the *cheapest*, most *savoury* and most *nourishing* food that could be provided was a soup composed of pearl barley, pease, potatoes, cuttings of fine wheaten bread, vinegar, salt, and water in certain portions.

The variety of vegetables and grain in the modern market makes a vast number of combinations possible in such soups. Experiments have been made in these laboratories to determine the desirable proportions of the ingredients for vegetable soups and the methods of combining them.

GENERAL PROPORTIONS

The materials to be used have been arranged in three groups; (1) Vegetable basis, (2) Thickening materials, (3) Seasonings. The soups should be thick with vegetables, and the peas, beans, and grain, should be left whole. If desired, the soup can be converted into a smooth puree by pressing the vegetables through a fine strainer, but this is not advised.

Vegetable basis. For each pint of soup there should be 1 cup of cooked vegetable.

Use $\frac{1}{4}$ cup or $\frac{1}{2}$ cup, uncooked, of any one of the following vegetables or of any suitable combination of two or more, the amount depending on the degree in which each kind increases in bulk. This quantity weighs from 2 to 3 ounces dry and will measure about 1 cup cooked.

Beans,—black, kidney, lima, navy, pinto, soy; peas,—dried, split, cow; corn,—dried, canned.

Thickening materials. For 1 pint of soup use $1\frac{1}{2}$ tablespoonfuls of flour. From 1 to 4 tablespoonfuls of the whole grains may be used,—oats, barley, rice, rye, kafir corn, feterita.

Seasonings. 1. Condiments,—salt, pepper, celery salt, chili pepper, catsup, vinegar.

2. Flavor vegetables,—onion, celery, carrot, okra.

3. Fat, either uncooked, or browned with the flavor vegetables or with the flour.

An almost unlimited number of combinations may be made using these general proportions. The following are especially good.

Black Bean and Kafir Corn

$\frac{1}{4}$ cup black beans	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{8}$ cup kafir corn	1 teaspoon salt
$\frac{1}{4}$ cup tomato	Pepper
1 tablespoon wheat	Water to make 1 pint soup

Lima Bean and Corn

$\frac{1}{4}$ cup lima beans	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{2}$ cup canned corn	1 teaspoon salt
1 tablespoon feterita	Pepper
1 tablespoon onion	Water to make 1 pint soup

Lima Bean and Tomato

$\frac{1}{4}$ cup lima beans	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{2}$ cup tomatoes	1 teaspoon salt
1 tablespoon feterita	Pepper
1 tablespoon onion	Water to make 1 pint soup

Lima Bean and Soy Bean

$\frac{1}{4}$ cup lima beans	1 teaspoon salt
$\frac{1}{4}$ cup soy beans	Pepper
$\frac{1}{4}$ cup tomato	Water to make 1 pint soup
$1\frac{1}{2}$ tablespoon flour	

Navy Bean and Feterita

$\frac{1}{4}$ cup navy beans	1 teaspoon salt
$\frac{1}{8}$ cup feterita	1 saltspoon celery salt
1 tablespoon onion	Pepper
$1\frac{1}{2}$ tablespoon flour	Water to make 1 pint soup

Soy Bean and Kafir Corn

$\frac{1}{4}$ cup soy beans	1 teaspoon salt
$\frac{1}{8}$ cup kafir corn	Pepper
1 tablespoon canned corn	Water to make 1 pint soup
$1\frac{1}{2}$ tablespoon flour	

Soy Bean and Tomato

$\frac{1}{4}$ cup soy beans	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{2}$ cup tomatoes	1 teaspoon salt
1 tablespoon kafir corn	Pepper
1 tablespoon canned corn	Water to make 1 pint soup

Cow Peas and Feterita

$\frac{1}{4}$ cup cow peas	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{2}$ cup feterita	1 teaspoon salt
$\frac{1}{4}$ cup tomatoes	Pepper
1 tablespoon corn	Water to make 1 pint of soup

Cow Peas and Kafir Corn

$\frac{1}{4}$ cup cow peas	1 teaspoon salt
$\frac{1}{4}$ cup kafir corn	Pepper
1 tablespoon onion	Water to make 1 pint soup
$1\frac{1}{2}$ tablespoon flour	

Cow Peas and Tomato

$\frac{1}{4}$ cup cow peas	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{2}$ cup tomatoes	1 teaspoon salt
1 tablespoon feterita	Pepper
1 tablespoon onion	Water to make 1 pint of soup

Feterita and Soy Bean

$\frac{1}{4}$ cup feterita	$1\frac{1}{2}$ tablespoon flour
$\frac{1}{4}$ cup soy beans	1 teaspoon salt
1 tablespoon onion	Pepper
1 tablespoon corn	Water to make 1 pint soup

NOTE.—Some of the dry ingredients increase from three to four times in bulk during cooking. In most cases, one cup of cooked material is included in each pint (two cups) of soup.

Following is an example showing how many varieties may be included in one soup. These amounts should make two quarts of soup.

$\frac{1}{4}$ cup navy beans	$1\frac{1}{2}$ cup corn (canned)
$\frac{1}{4}$ cup soy beans	$1\frac{1}{2}$ cup tomatoes
$\frac{1}{4}$ cup black beans	$\frac{1}{4}$ cup flour
$\frac{1}{4}$ cup cow peas	2 teaspoons salt
$\frac{1}{4}$ cup kafir corn	Water to make two quarts soup

Where kafir corn and feterita are not available, barley, oats, rice, or rye may be substituted in the same proportions. The soups may also be made without any whole grains, but the amount of thickening would need to be slightly increased.

METHODS

1. Cook dried vegetables and grains. If two or more are to be used, they may be cooked together. (*Exception*—Do not cook cow peas with other vegetables. Use a large amount of water to extract the strong flavor.)

Dried Vegetables. To cook by boiling in an ordinary kettle, soak from eight to ten hours in cold water. Drain. Add twice their bulk of water. Boil till well softened (about two hours).

To cook in a pressure cooker, soaking is unnecessary. Add twice their bulk of water. Cook 1 hour at 15 to 20 pounds pressure. Drain off water.

Grains. The method of cooking is the same as for dried vegetables, except that the water should not be drained.

2. If both fat and flavor vegetables are to be used, brown the fat, add the chopped vegetables and brown, then add to the cooked vegetables.

3. Add the tomato or corn and seasonings, being careful to blend to secure a good flavor.

4. Add the flour to thicken. (Add water if necessary to make required volume.)

5. Cook all together, two hours in a double boiler or from one-half to one hour in a pressure cooker. This operation is very essential in order to blend and to develop the proper flavor.

6. To secure the right amount, reduce by boiling or add water, whichever may be necessary.

Allow one cup for each serving. The amounts given are for one pint or two servings. To serve a larger number multiply by one-half the number of servings desired.

It would be a great economy in time to make a large quantity and preserve for future use by canning.

NUTRITIVE VALUE AND COST

At the present high retail prices, these soups cost from 1 cent to 2½ cents per one cup serving. The use of canned corn and tomatoes increases the cost quite out of proportion to the added food value, but these are desirable for flavor. If home canned instead of commercial products are used, the cost will be much lower.

The soups provide a good combination of well balanced food materials, each serving from 8 to 12 grams of protein and 150 to 200 calories. They are highly desirable also because of their mineral salt content. While the addition of fat would increase the cost, it would also increase the food value. Without either meat-broth or fat, the soups are exceedingly palatable.

A simple and satisfying lunch can be prepared, using the soup as the main part of the meal.

EDITORIAL

The Voluntary Ration. Many women have been asking that the Food Administration should tell them not merely what per cent of wheat, and meat, and sugar, and fat they should save but give some definite statements of how much they may use. Many housekeepers do not know how much they have been using of these different foods, and found it very difficult to know just what is meant by going without 25 per cent of wheat or 10 per cent of sugar.

It is not easy to give such a definite statement because there is such a very great variation in the use of each of these that any figure determined on might mean for many people an increased rather than a lessened use, while for others it might mean unnecessary hardship. The working man who depends very largely on bread, and the wealthy woman who has a varied diet and uses little bread cannot be reached by the same statement.

Yet an attempt has been made especially at the request of a group of New York women to formulate such a ration based, as nearly as may be, upon the amount of food available at present. The voluntary ration will help a great many who are earnestly trying to obey the behests of the Food Administration, and who have not known how.

UNITED STATES FOOD ADMINISTRATION RATION CARD

Weekly Allowance per Person

<i>Fish:</i> Oysters and sea food, all kinds.	As much as necessary
<i>Poultry and Game:</i>	As much as necessary
<i>Meat:</i> Beef (fresh, salted, tinned and hashed); mutton, lamb and veal (mutton by preference); pork (the weekly allowance of pork per person should not exceed half a pound)	2½ lbs. gross weight
<i>Butter:</i>	½ lb.
<i>Cooking and Kitchen Fats:</i> Margarine, lard substitutes, such as corn, cottonseed, peanut, and olive oils.	Only as much as necessary
(We are also shipping these abroad)	

<i>Wheat Flour:</i> For use in cooking, such as gravies and sauces. (Use as far as possible corn starch, cracker dust and bread crumbs) (Remember that macaroni is made from wheat flour)	$\frac{1}{2}$ lb.
<i>War Bread:</i> Made according to regulations of Food Administration; i.e., must contain at least 20 per cent per unit of a substitute for wheat flour. (3 lbs. of bread require $2\frac{1}{4}$ lbs. of flour)	3 lbs.
<i>Sugar:</i> Including table use and in cooking, including candies and sweetmeats (not the sugar used for canning and preserving) . .	$\frac{3}{4}$ lb.
<i>Nonwheat Cereals:</i> Corn meal, oatmeal, rice, hominy, barley, and rye	As much as necessary
<i>Vegetables and Fruits:</i> Fresh and dried	As much as necessary
<i>Milk:</i> (Children must have full allowance) . .	
<i>Cream</i>	Only as much as necessary
<i>Cheese</i>	As much as desired

THE QUESTION BOX

Question: What is flat sour which we have heard so much about in connection with the canning of peas, corn and asparagus?

Answer: Flat sour is caused by spoilage, in some cases in the raw material before canning, in others after canning as the result of insufficient processing. It most often results from giving the regular process to material which has been allowed to stand for some time such as peas remaining in a load over night or corn left in a pile until it begins to heat. The raw material, on superficial examination may show no evidence of fermentation. When such material is canned it is more or less sour to the smell and taste but may be sterile, the heat of processing having killed the bacteria.

Souring may also take place shortly after processing or the spoilage may be delayed for weeks or even months. In either case the heat used was insufficient to kill the vegetative forms or spores, but may have injured them to such an extent that time was necessary for recovery and subsequent development.¹

All evidence points to conclusions that *Bacillus botulinus*, the organism responsible for botulism, is seldom present in cases of "flat sour," although it is not improbable that it may be a contributing cause in very rare instances.

¹ Methods followed in the commercial canning of foods. United States Department of Agriculture, Bulletin No. 196.

BOOKS AND LITERATURE

The Modern Milk Problem. By J. SCOTT MACNUTT. New York: The Macmillan Company, 1917, pp. 258. \$2.00. By mail of the Journal, \$2.12.

This volume appears at an opportune time, for the economics of the milk question is particularly in the minds of the consumer this winter, especially in our large cities. The book is designed not only for those directly interested in milk production but also for health officials who presumably control the sanitation of the supply, and for "all others who are interested in the understanding and solution of the milk problem." The book is written for the most part in non-scientific language,—in places perhaps too popular,—but in some respects this will add to its general usefulness.

There are five divisions. The first two give explanations concerning the present status of the milk question, the third and fourth discuss the sanitary and economic factors involved in milk production, and the last contains suggestions relative to the solution of the whole problem. Considerable data on milk production and distribution is contained in an admirable appendix. The discussion of the economic factors is particularly recommended to those who are inclined to see only the consumer's point of view. Some rather loose English and too many indefinite statements, which are likely to give the non-technical reader wrong impressions, are to be regretted, but these should not detract from the general good the book should do.

The following conclusions are well worth repeating here. "Health authorities must adopt improved methods of sanitation and, with legislative sanction and support, establish rational regulation based upon the grading principle.

"Legislators must recognize the necessity of legislation authorizing such regulation, as opposed to the dangers of inaction or partisan interest.

"Agricultural authorities must advise the farmer in the methods of producing sanitary milk efficiently.

"The dairy farmer must welcome this assistance and make use of all possible means of improving his methods and management, and he must organize.

"The dealer must respect the interests of the farmer, work for the solution of their common problems, and pay a fair price for milk according to quality.

"The consumer, finally, must recognize quality in milk; he must be willing to pay a fair price for good milk and a reasonably higher price for better milk."

JOHN F. NORTON.

University of Chicago.

The World's Food. Vol. 74, whole no. 163 of *The Annals of the American Academy of Political and Social Science*, Philadelphia, 1917, pp. 313. \$1.00.

One of the most valuable contributions to the present food situation is made in *The World's Food*. It contains figures and statistics not easily available, as well as articles of general interest both to scientific workers and to housekeepers.

It deals not only with accomplished work, but with plans for another year. Not only America's food supply, but that of Norway, Sweden, Holland, Switzerland, France, Great Britain, and Japan is discussed by representatives of each nation, including such distinguished people as Nansen, Monod, and Viscount Ishii.

One of the papers is reprinted in this number of the JOURNAL and others will probably be reprinted in the near future.

The Story of the Sargent Industrial School at Beacon, New York, 1891-1916. Told by Sarah Louise Arnold. Printed for the scholars. Boston: The Merrymount Press, 1917, pp. 77.

The description of the Domestic Service Course in the Sargent Industrial School which started in 1894 and continued until 1910,

will be particularly interesting to every student of the domestic service problem and to all who have considered what can be done for training workers in this field of labor. The whole record should have a place in every library of home economics education. It will be found both delightfully told, and most suggestive.

B. R. ANDREWS.

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The Marketing of Canning Club Products. Lewis B. Flohr. Bureau of Markets.

Coöperative Purchasing and Marketing Organizations among Farmers in the United States. Bulletin No. 547.

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United States Food Leaflets: No. 1, *Start the Day Right*; No. 2, *Do You Know Corn Meal?*; No. 3, *A Whole Dinner in One Dish*; No. 4, *Choose Your Food Wisely*; No. 5, *Make a Little Meat Go a Long Way*; No. 6, *Do You Know Oatmeal?*; No. 7, *Food for your Children*; No. 8, *Instead of Meat.* (Issued by the Dept. of Agr. and the Food Administration.)

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- Textiles*, Special Bulletin No. 15. The University of Minnesota, Agricultural Extension Division, University Farm, St. Paul, Minn.
- A Child Welfare Research Station*, Bulletin, Jan. 15, 1916. State University of Iowa, Iowa City, Iowa.
- Agriculture and Home Economics*. P. H. Wilson. State Superintendent of Public Instruction, Oklahoma City, Okla.
- Save Our Sugar*. Bertha E. Shapleigh. New York City Section, Emergency Committee of the A. H. E. A., New York City Section Office, 19 W. 44th St. Price 10 cents.
- The Adequacy and Economy of Some City Diets*. H. C. Sherman and L. H. Gillett. Bureau of Food Supply, the New York Association for Improving the Condition of the Poor.
- New York as Foster Mother*. Children's Home Bureau, Department of Public Charities, New York City.
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NEWS FROM THE FIELD

The Ninth Annual Meeting of the Iowa Home Economics Association was held in Des Moines November 1 and 2.

The adjustment of home economics work to meet the present situation was the keynote of the addresses. In speaking of the costume in war times, Miss Ethelyn Miller, head of the Domestic Art Department at Iowa College stated that by spring the only available fabrics for the patriotic woman would be silk and cotton. It will be necessary for us to readjust our ideas of the appropriateness of silk for the business costume.

Miss Edna White, director of Home Economics in the University of Ohio urged food study as a patriotic duty. Never before has a need for general information as to the fundamental principles of diet been more imperative.

The Iowa plan for the teaching of Vocational Home Economics was presented by Mr. John L. Cherney, State Inspector of Normal Training Schools.

The importance of the study of the clothing budget as a part of the high school course was strongly set forth by Miss Janet Cation of Iowa State College.

Mrs. Anna L. Burdick, director of Vocational Guidance for the Des Moines school system, in speaking of vocations for women other than teaching, urged the coöperation of women in all lines of professional and industrial work. It is only as we work together and face the problems together that we can hope to solve the problems for the wage earning woman.

That Iowa does not so much need new laws but an enforcement of those already on the statute books was the keynote of the paper by Miss Bessie McClenahan, of the Bureau of Social Welfare, University of Iowa.

Miss Olive Young of Iowa State Teachers' College conducted a Round Table upon the subject of the Readjustment of

Teaching to Meet Present Needs. Those reporting were Miss Anna S. Oleson, Supervisor of Home Economics, Ft. Dodge, Miss Bloy of Cornell College, Miss Anna M. Peterson of the Consolidated School at Ottosen, and Miss Florence Wilcox of Osage.

Federal Board for Vocational Education. The first official Federal definition of vocational education under the vocational education act is made public in a bulletin on the policies of the Federal Board for Vocational Education, issued in December.

"To the extent that it is subsidized by the Federal Government under the Smith-Hughes Act," declares the board, "vocational training must be vocational training for the common wage-earning employments. It may be given to boys and girls who, having selected a vocation, desire preparation for entering it as trained wage-earners; to boys and girls who, having already taken up a wage-earning employment, seek greater efficiency in that employment; or to wage-earners established in their trade or occupation, who wish, through increase in their efficiency and wage-earning capacity, to advance to positions of responsibility."

The guiding principle of the newly created system of vocational education is announced to be that "the education to be furnished must be under public supervision and control designed to train persons for useful employment, whether in agriculture, trade and industry, or home economics."

To meet the demand for information as to the policies of the Federal board, an edition of 100,000 copies of this bulletin is being published and distributed to members of Congress, Federal officials, state and city school officials, manufacturers, chambers of commerce, labor unions, educators, newspapers, magazines, and, in general, to the interested public.

In addition to the statement of policies, the bulletin contains analyses of the law, together with statistical tables showing the amounts of money available to the States for coöperation with the Federal Government in securing vocational education.

Notes from Utah Extension Field. Because of the great pressure of work in the office and field in the early part of last summer, another assistant, Hortense White, was chosen to aid the State Leader in Home Economics Work.

The state of Utah now has nine Home Demonstrators, two working through the Smith-Lever Bill and seven working through the Emergency Bill. Their winter projects are, food selection, emphasizing dairy products in the diet, economy and nutrition, and renovation of clothing. Each home agent will make out a general program which will cover the needs of the various communities, such as sanitation, clean milk campaigns, increased poultry production, and other matters of welfare to the community.

State Normal School, Harrisonburg, Va. As a contribution to food conservation the resources of the campus of forty-nine acres are being utilized more fully than ever before. The apples of the orchards, the vegetables from the truck patches are being given a value in keeping with the need of the times; and thirty pigs thrive in a remote corner with due regard to the rules of sanitation.

The students taking the course in Institutional Management made a study of the amount of food left on the plates in the dining room in one week, and reported to the others the results of the investigation, making an appeal for "clean plates."

There are some changes in the faculty this session. Miss Hannah B. Corbett has charge of the housekeeping department and also teaches Institutional Management, and Mrs. McMichael, of Peabody College for Teachers, is a new instructor in Household Arts.

The Dietitians of Philadelphia and vicinity have formed a Dietitians Section of the Home Economics Association of Philadelphia. Prof. Emma Gunther of Teachers College, Columbia University, spoke at their first meeting. The October meeting was addressed by Miss Mary E. Sweeney, Head of the Household Economics Department of the University of Kentucky, and at that time Chairman of the Home Economics Section of the United States Food Administration.

The Section started with about thirty members and has now doubled its number. The Dietitians have wished for acquaintance and mutual helpfulness, and this section is proving a most satisfactory way of filling this need.

Home Demonstration Assistants. The following staff of experienced women are assisting in the organization and development of home demonstration work, where such service is desired by the states, under the direction of Miss Florence Ward, Office of Extension Work North and West.

Miss Anna Barrows, a member of the faculty at Teachers' College, New York, is too well known in every state as a lecturer, demonstrator, and writer to need further introduction.

Miss Miriam Birdseye has been for three years Assistant Professor of Home Economics Extension Work in the New York State College of Agriculture for which she has conducted extension schools in foods and cookery. During the past summer, she assisted in preparing conservation literature for New York State and in training the newly selected women county agents in demonstration methods.

Mrs. Emma Reed Davisson, a member of the Extension Staff of the State College of Nebraska, has for seven years had charge of the organization and promotion of rural home economics clubs, out of which have grown strong county organizations which are now supporting home demonstration work. She has thus had successful experience in discovering and training community leaders, in stimulating serious study of home

economics by groups of farm women, and in building up community centers throughout the state.

Miss Margaret Hooker, formerly a member of the faculty of Rochester Mechanics' Institute, has made a study of economic and social problems of women, both in this country and in Europe, and has been especially interested in the advancement of home and community interests. She has recently made a study of community kitchens, not only as to their value in community canning and drying, but as to their wider possibilities for community service.

Mrs. Edith Charlton Salisbury resigned her position in charge of extension work with women, State University of Arizona, to come to Washington. She was one of the first women county agents in the northern and western states. Her work has included four years as Professor of Household Science, Manitoba Agricultural College, and four years in charge of Home Economics Extension Work, Iowa State College.

Miss Marie Sayles, Assistant Professor of Home Economics Extension in the Massachusetts Agricultural College, is on leave of absence. She has conducted home-makers' schools in rural communities throughout Massachusetts, and during the past year, in the absence of the regular State leader, she took charge of the work. It was during this time that home demonstration work was completed in every county in the State. This gave Miss Sayles exceptional opportunity to study and help put into effect county organization for woman's work.

Dr. Ruby Greene Smith is a specialist in city organization with an excellent background of social and economic training and experience. Since the war emergency she has cooperated with the New York State College of Agriculture, Extension Staff, in organizing and promoting producers' and consumers' markets, neighborhood buying clubs, and other community enterprises which have to do with the handling of food-stuffs.

The Home Economics Association of Greater New York. The first of the year's meetings was held at the Sage Foundation Assembly Hall, on October 23, with a hundred and seventy present.

Dinner was served by the New York School Lunch Committee. Dr. Andrews was Evening Chairman.

Mrs. Learned Hand, Chairman of the Liberty Loan Committee of the Suffrage Association, spoke convincingly of the need for saving and loaning money for government financing, and of the share which women should willingly bear in this war activity. Dr. Andrews also urged generous investment in Liberty Bonds, either for personal ownership or as a contribution to the Richards Memorial Fund, and about thirty dollars was subscribed following the meeting, towards the purchase of a bond for the Fund.

Mr. Alexander Thompson, representing the Food Administration spoke on the food situation here and in Europe, telling many personal incidents of self-denial "over there," and urging that we take the situation more seriously and be more willing to help "keep our national faith" by conscientiously conserving food as requested.

Miss Mary E. Sweeney, of the University of Kentucky, and chief of the Home Economics Section of the U. S. Food Administration for September and October, was the third speaker of the evening. From her close contact with the national and international food situation, she made a strong appeal to home economics workers to act as active leaders in intelligent food conservation effort.

The next meeting of the Association was held November 20, with dinner served at the Washington Irving High School. Dr. Henry C. Sherman and Dr. C. E. A. Winslow of the Red Cross Commission to Russia, and Mr. Bailey B. Burritt of the Mayor's Milk Committee spoke.

The Association of Prison Reform. Miss Harriet Boyer of H. Sophie Newcomb College was asked to represent the A. H. E. A. at the meeting of the Association of Prison Reform in New Orleans, November 19 to 23, 1917, and has sent this report:

Cruelty and sentimentality are the two colossal evils in prison management, according to Dr. David C. Peyton, President of the Association. The modern prison should be a beehive of industrial activity and should be more than self-supporting. Punishment has a place in prisons, but it should be logical and should flow as a natural consequence from the transgression. The industrial training should be correlated with the didactic instruction and the prison library. The feeling generally amongst wardens was decidedly against corporal punishment.

In discussing the Honor System, the wardens very generally agreed that its success depended entirely upon the wardens. Self-government as practiced really means government by a few leaders and is the poorest form of government in any institution, reported one warden. Appeal to emotion, he said, produces no lasting change in conduct.

Twenty per cent of all inmates in institutions are good, 20 per cent are viciously bad, and the rest weak-willed and can be carried either way by leaders.

Miss Maude E. Miner, secretary of the Probation and Protective Association of New York, in talking of social problems said, "We are constantly trying to arouse the patriotism of the American people and to make them realize something of the horrors of war, but the strongest kind of patriotism that can be appealed to is that which will make the men realize that they are the protectors of women's honor as well as of women's property."

The socialization of youth was much discussed in the women's association. Criminals often develop from unfriendly, queer children. Institutions fail to reform those with hardened malformations of character. Laziness and ill health produce bad characters. Habits of industry and health will do much to correct wrong tendencies. The

agencies mentioned as aiding effective preventive work were the Children's Aid Society, the Day Nurseries, The Widow's Compensation Act, the Workmen's Compensation Law, the Child Labor Legislation, the Juvenile Court, the Play Ground Movement, the Vocational Schools, churches, boys' club work, and other juvenile organizations.

Improper housing conditions, the unasimilated foreigner, the influx of rural population into the cities produce evil tendencies. In England juvenile delinquency, it was reported, has increased 34 per cent and larceny over 50 per cent since 1915. Delinquencies of boys of 12 and 13 have increased in greater proportions than in any other group. The absence of fathers at the front, the employment of mothers in various branches of war service, the giving up of homes or sharing them with others, the lowering of standards of living, and the impaired educational system are all responsible for this breaking down of child life.

Mr. Frank McDonald, a warden of the Minneapolis Prison, said that when a prisoner came to him he required that the wife and children come also, so that he might hear both sides of the story. It is his opinion that women are about 40 per cent responsible for troubles.

Senator E. M. Stafford of New Orleans sounded a new note in his recommendation that earnings of prisoners be turned over to those whom they had wronged. Another speaker urged that wages be accumulated for a new start in life when prisoners are discharged.

The next meeting of the Association will be held in Oklahoma City.

The American Red Cross in France has sent a call for five dietitians to go to France by March 1 for French hospital service. The requirements include a speaking knowledge of French, thorough technical training, practical experience in a hospital or some large institution that will have given experience in handling large quantities of food, and in directing the purchase or requisition of sup-

plies, and the regulation of dietaries. No one under 26 years of age will be accepted.

Although the Red Cross has more than 1000 dietitians registered, many have had only teaching experience, few can speak French, and many are already assigned to base hospital units either for foreign service or in cantonment hospitals in this country.

Applicants should send their requests to the American Red Cross, Washington, D. C.

The United States Food Administration is issuing outlines for three courses in Food Conservation for Colleges, that are already being given in a large number of colleges, so that thousands of students are using them.

The lessons are sent out week by week in mimeographed form, with appropriate references and the freshest available information.

The first course is called "Food and the War." It will give the history and organization of the Food Administration, its purpose and policies, as well as a general survey of the world's food problem in its governmental, economic, and nutritional aspects. It is planned for one hour a week for the second semester.

The second course is "The Fundamentals of Food and Nutrition in Relation to the War," and is a development of the subject matter of course one, with greater emphasis on its nutritional aspects, and their relation to national and individual food conservation. This requires 48 hours of work, and has a full bibliography.

The third is a laboratory course, planned only for students taking courses One and Two. It is to cover 64 hours, and gives the practical application of the principles

presented in course Two. This course is called "The Use and Conservation of Foods."

Notes. Miss Martha Van Rensselaer has been appointed by the United States Food Administration as Director of Home Economics in New York State outside of New York City, and Mrs. Mary Schwartz Rose to the same position for the City.

At the recent annual meeting in Washington of the American Public Health Association Professor Marion Talbot, of the Department of Household Administration at the University of Chicago, presented as chairman of the committee on Retail Distribution and Marketing a report to the Food and Drugs section and also read a paper on "Housekeeping and the Public Health" before the Sociological section.

Miss Helen Kinne, Professor of Household Education in Teachers College, Columbia University, died December 29, 1917, in New York City, after an illness of only five days. The funeral services were held in St. James' Chapel, at the Cathedral of St. John the Divine, New York, on New Year's Day, and were in charge of Bishop Greer and Chaplain Knox of Columbia University.

An account of Professor Kinne's life and her services to home economics will be given in a later issue of the JOURNAL.

The National Society for the Promotion of Industrial Education will meet in Philadelphia, February 21-23, 1918.

The Religious Education Association will meet at Atlantic City, March 4 to 6, 1918.

ANNUAL MEETING OF THE AMERICAN HOME ECONOMICS ASSOCIATION
AT ATLANTIC CITY MARCH 1 AND 2, IN CONNECTION WITH
THE DIVISION OF SUPERINTENDENCE, N. E. A.

TENTATIVE PROGRAM

Friday, March 1, 9 a.m.

President's Address.

Appointment of Nominating Committee.

Round Table Discussion. *Topic*, What and How to Teach Food Values to the General Public.

Dr. Ruth Wheeler, University of Illinois, *presiding*.

Dr. E. V. McCollum, Johns Hopkins University.

Miss Caroline L. Hunt, States Relations Service, Office of Home Economics.

Miss Elizabeth Sprague, University of Kansas and U. S. Food Administration.

Miss Mary E. Creswell, States Relations Service, Office of Extension Work, South.

Dr. C. F. Langworthy, States Relations Service, Office of Home Economics.

Dr. Alice Blood, Simmons College.

Miss Florence E. Ward, States Relations Service, Office of Extension Work, North and West.

2 p.m.

General Session N. E. A.

Miss Sarah Louise Arnold, Simmons College and U. S. Food Administration.

7.30 p.m.

Round Table Discussion. *Topic*, The Smith-Hughes Bill: Its Effect on Home Economics.

Miss Josephine Berry, Federal Board of Vocational Education.

Miss Anna Richardson, Federal Board of Vocational Education.

Conservation of Clothing.

Suggestions of Textile Committee. Chairman, Miss Grace G. Denny, University of Washington.

Saturday, March 2, 9 a.m.

Round Table Discussion. *Topic*, Home Economics in the Public Schools under War Conditions.

Miss Carrie Lyford, Bureau of Education, *presiding*.

Miss Grace Schermerhorn, Supervisor of Domestic Science, N. Y. C.

Miss Cora Harris, Supervisor of Home Economics, Shelby Co., Tenn.

Miss Jenny H. Snow, Supervisor of Household Arts, Chicago Public Schools.

Miss Emma Jacobs, Supervisor of Domestic Science, Washington.

Miss Alice Johnson, Supervisor of Domestic Science, Philadelphia.

2 p.m.

Business Session

Report of Committees

Report of Treasurer

Report of Nominating Committee

3 p.m.

Home Economics and Civilian Relief Work in the United States.

Mr. W. Frank Persons, Director of the Civilian Relief of the Red Cross.

SPECIAL MEETINGS

Council of the American Home Economics Association. Thursday evening at 7.30 at The Traymore.

Richards Memorial Fund Trustees. Saturday morning at 11 at The Traymore.

All meetings will be held in the Library Room of the Traymore Hotel.

A list of hotels may be obtained from the Secretary of the National Education Association, Washington, D. C. The N. E. A. has no one place as headquarters. The Traymore will be headquarters for the A. H. E. A.

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

KETURAH E. BALDWIN, *Managing Editor*

KATHARINE BLUNT

NEALE S. KNOWLES, Chairman Extension Education Section

Collaborators—The Officers, Members of the Council, and Advisors

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TWO LETTERS

To the Departments of Home Economics in the Colleges and Universities:

The United States Food Administration recognizes the excellent work that is being done by the departments of Home Economics in the colleges and universities. Thousands of young women are being prepared to grapple with the problems concerned with food and the home. Graduates of these departments will find themselves called to places of usefulness far surpassing in number and responsibility anything heretofore thought possible. Issues that demand the rarest talent and the highest scientific training await their attention. This splendid army of specially trained young women is counted on by the Food Administration to give willing and effective service.

Faithfully yours,

HERBERT HOOVER.

To the Women in the Graduating Classes of the Colleges and Universities:

The United States Food Administration calls you to its service. Our need is so great that we appeal to you to prepare yourselves as best you can, and to enlist for the great work that must be done.

There will be diversity of tasks and therefore diversity of talent and training can be used. All our questions now center in food; its production, its distribution, its use, its conservation. The more you know about these things the more valuable you will be, and the greater will be your service to humanity.

If you have not already done so, we urge you to pursue studies dealing especially with food, but these should be reinforced by courses in chemistry, physiology and economics. It will be well, too, if you have acquired the arts of public presentation of your knowledge to the people who so much need it.

Fortunately most of our educational institutions now offer courses which give the necessary training for this work, but to the others an appeal is being sent to provide such instruction wherever it is possible.

More detailed suggestions and directions will be published soon. Today your country asks you to resolve to do what you can in this the hour of extreme peril to the democratic peoples of the world.

Faithfully yours,

HERBERT HOOVER.

THE Journal of Home Economics

VOL. X

MARCH, 1918

No. 3

DIETARY STUDY AT VASSAR COLLEGE

ANNIE LOUISE MACLEOD AND MARY A. GRIGGS

In February, 1917, a dietary study was made at Vassar College with the object of obtaining accurate data as to the amount, kind, and quality of the food consumed by Vassar students, and its nutritive value as compared with the theoretical requirements of active girls of the age of these students.

Method of Study. One hall, Davison, was selected as typical, since similar conditions prevail throughout the College. The study began at noon, February 8, and ended with breakfast, February 22. The group under observation numbered 115, of whom 7 were faculty, 17 servants (including 2 men), and 91 were students whose average age was 19.4 years, height 5 feet, 4 inches, and weight 123.9 pounds. During the first week 2030 meals were served, and during the second 1897, making a total of 3927.

A careful inventory was taken of all supplies on hand at the beginning and at the end of the experimental period, and all food materials brought to the hall during this period were weighed. In the case of foods such as bread, cake, puddings, which were cooked in the college bake-shop and sent to the hall ready to serve, the raw materials used in their manufacture were weighed in the bake-shop, thus obviating the necessity for an infinitude of analyses. In calculating the food values, the figures given for the average composition of American foods in O. E. S. Bulletin 28 of the Department of Agriculture were used wherever possible. Where average values were not obtainable special analyses were made.

The inedible waste, or refuse, consisting of bones, seeds, parings, was collected and weighed daily. With this there was inevitably some edible

material, the amount depending partly on the care employed in separating the refuse from the food materials. The edible waste included the scraps from the plates and all food left over in such a condition that it could not be utilized again. This was weighed, run through a meat chopper, and thoroughly mixed, a 1 per cent sample taken for analysis, and a few drops of formalin added to prevent decomposition. At the end of each week all the material collected was dried, mixed, and analyzed. The total amount of waste, edible and inedible, was subtracted from the amount of food used, to give the amount actually consumed.

Food. The food was plain but appetising, and showed considerable variation. The meals were well balanced, and particularly successful in the avoidance of the fixed routine which makes so many institutional diets unbearably monotonous. The raw materials used were of excellent quality, and, in general, well cooked. The following is a typical day's menu.

Breakfast

Ralston	Apple sauce	
Omelet	Puffed rice	Cream
Rolls	Hard and soft boiled eggs	
Coffee	Bread	Butter
	Chocolate	Milk

Luncheon

	Appledore soup	Crackers	
	Hamburg steak	Brown sauce	
	Potatoes au gratin	Tomatoes	
Graham and white bread	Cinnamon biscuit		Butter
Chocolate	Tea	Milk	

Dinner

	Duchess soup	Crackers
	Boiled lamb	Caper sauce
Potato puff	Parsnips	Banana fritters
	Dinner bread	Butter
	Chocolate Bavarian cream	

Waste. The total waste represented 26 per cent of the food purchased, 10.6 per cent of the waste being edible and 15.6 per cent inedible material.

It was impossible to compare our results with those of other institutions since in the majority of cases where a dietary study has been made either the waste has not been separated into edible and inedible or the investigator has neglected to define his terms precisely.

TABLE I

Weights of food and nutrients consumed

KIND OF FOOD	AMOUNT PURCHASED	TOTAL COST	TOTAL NUTRIENT AND ENERGY VALUE			
			Protein	Fat	Carboby- drate	Fuel value
	<i>pounds</i>	<i>dollars</i>	<i>grams</i>	<i>grams</i>	<i>grams</i>	<i>calories</i>
<i>Animal food</i>						
Bacon.....	40.5	8.10	1,745.0	10,912.0		105,192.4
Beef:		71.55				
Hamburg steak....	40.0		3,792.0	1,923.0		32,478.1
Steak.....	61.0		4,925.0	4,704.0		62,036.3
Top loin.....	12.0		969.0	909.0		12,056.6
Suet.....	16.0		341.0	5,937.0		54,797.4
Flank.....	27.25		2,299.0	2,460.0		31,334.6
Fat.....	14.0		260.0	5,213.0		47,962.2
Trimming.....	48.5		2,420.0	4,224.0		47,696.0
Roast beef.....	114.5		7,479.0	10,387.0		123,402.2
Chicken.....	240.0	68.50	14,914.0	13,390.0		180,170.3
Ham.....	25.0	5.25	2,506.0	2,336.0		31,048.4
Lamb:		39.70				
Shoulder.....	75.75		4,948.0	8,109.0		92,772.2
Breast and neck...	43.5		2,881.0	4,025.0		47,751.3
Liver and lungs...	2.5		229.0	32.0		1,202.6
Fat.....	4.5		84.0	1,676.0		15,416.1
Racks.....	14.0		895.0	1,315.0		15,412.1
Legs.....	34.0		2,452.0	2,097.0		28,685.0
Gelatine.....	0.18	0.12	78.0	0.1		311.7
Lard.....	9.5	1.65		4,309.2		38,782.8
Liver.....	14.0	4.90	1,282.7	196.9	158.8	7,538.1
Pork:		16.58				
Head.....	9.0		167.4	563.3		5,739.3
Feet.....	29.0		539.3	907.6		10,325.6
Fat.....	6.25		102.1	2,548.7		23,346.7
Hams.....	31.5		1,928.9	2,700.6		41,021.0
Shoulders.....	25.75		1,401.6	3,480.6		36,931.8
Loins.....	37.5		3,284.9	2,211.3		32,761.3
Belly.....	30.25		891.9	7,766.1		73,462.5
Sausage.....	58.0	15.61	5,103.9	6,340.2		77,477.4
<i>Unused;</i>						
Beef, cooked.....	6.5	1.95	772.4	1,028.9		12,349.7
Lamb, cooked.....	3.5	0.85	312.8	201.7		3,066.5
Soup stock.....	11.0	0.10	289.4	74.9		1,831.7
Fat sold.....	30.0	1.20		13,608.0		122,472.0
Total unused.....	51.0	4.10	1,374.6	14,913.5		139,719.9
Total meat.....	1,012.9	227.89	66,476.6	96,761.3	158.8	1,137,392.1
<i>Fish:</i>						
Clams.....	19.9	2.25	189.0	9.0	126.0	1,341.0
Codfish.....	23.25	2.79	2,921.2	31.6		11,969.2

TABLE 1—Continued

KIND OF FOOD	AMOUNT PURCHASED	TOTAL COST	TOTAL NUTRIENT AND ENERGY VALUE			
			Protein	Fat	Carbohy- drate	Fuel value
	<i>pounds</i>	<i>dollars</i>	<i>grams</i>	<i>grams</i>	<i>grams</i>	<i>calories</i>
Fish—Continued						
Finnan haddie.....	23.0	6.00	1,648.4	10.4		6,687.2
Haddock.....	52.0	3.47	1,981.3	47.2		8,350.0
Oysters.....	24.25	4.80	659.9	143.0	362.9	5,378.2
Salmon.....	2.0	0.32	176.9	68.0		1,319.6
Total fish.....	144.40	19.63	7,576.7	309.2	488.9	35,045.2
Dairy products						
Butter.....	123.0	50.43	557.9	47,424.1		429,048.5
Cheese.....	6.0	1.56	783.9	977.2	8.2	11,963.2
Cream.....	266.9	26.28	3,027.2	19,373.8	5,448.9	208,268.6
Eggs.....	106.25	34.00	5,735.2	4,482.1		63,279.7
Egg whites.....	1.5	0.48	83.6	1.4		347.0
Milk.....	1,508.7	40.78	22,583.7	21,899.4	34,217.8	424,300.6
Total dairy prod- ucts.....	2,012.35	153.53	32,771.5	94,158.0	39,674.9	1,137,207.6
Total animal food.....	3,169.7	401.05	106,824.8	191,228.5	40,322.6	2,309,644.9
Vegetable food						
Cereals:						
Barley.....	2.0	0.11	77.1	10.0	705.8	3,221.6
Bread, graham....	81.5	4.08	3,290.1	665.4	19,260.5	96,191.0
Bread, white.....	228.75	11.44	9,442.3	1,660.2	55,304.6	273,929.4
Cornflakes.....	1.7	0.22	42.2	11.5	621.1	2,756.7
Cornmeal.....	3.0	0.06	125.2	25.9	1,026.0	4,837.9
Cornstarch.....	0.75	0.04			306.2	1,224.8
Crackers, oyster...	15.25	2.10	781.7	726.3	4,876.8	29,170.7
Flour, wheat.....	130.25	5.86	6,617.1	590.8	44,252.0	208,793.6
Flour, rye.....	2.0	0.17	61.7	8.2	714.0	3,176.6
Grapenuts.....	5.5	0.70	287.4	25.0	1,974.2	9,271.4
Hominy grits.....	4.87	0.50	183.8	13.3	1,749.9	7,854.5
Krumbles.....	1.56	0.18	87.3	9.9	573.0	2,730.3
Malt Breakfast food.....	4.37	0.30	234.6	9.9	1,497.0	7,015.5
Quaker Oats.....	2.87	0.16	218.1	95.4	864.8	5,190.2
Rice.....	7.75	0.41	281.2	10.5	2,777.2	12,328.1
Rice, puffed.....	0.12	0.05	45.4	1.7	448.7	1,991.7
Rolls, wheat.....	105.0	10.50	6,619.9	2,000.4	28,529.2	158,600.0
Sphaghetti.....	2.5	0.33	137.5	4.5	866.8	4,057.7
Tapioca.....	3.0	0.32	5.4	1.4	1,197.5	4,824.2
Triscuit.....	0.93	0.18	46.2	6.2	342.9	1,612.2
Cream of wheat...	3.93	0.34	196.8	25.0	1,365.1	6,472.6
Wheat food.....	4.12	0.32	208.0	31.9	1,415.2	6,779.9
Wheat, puffed.....	0.37	0.18	17.9	2.4	132.7	624.0
Wheat, shredded..	4.5	0.60	214.7	28.6	1,592.9	7,487.8
Total cereal food	616.59	39.15	29,221.6	5,964.4	172,394.1	860,142.4

TABLE 1—Continued

KIND OF FOOD	AMOUNT PURCHASED	TOTAL COST	TOTAL NUTRIENT AND ENERGY VALUE			
			Protein	Fat	Carbohy- drate	Fuel value
	<i>pounds</i>	<i>dollars</i>	<i>grams</i>	<i>grams</i>	<i>grams</i>	<i>calories</i>
Vegetables:						
Black beans, dry...	2.75	0.17	293.9	23.5	778.6	4,501.5
Beets, cooked.....	7.25	1.25	75.6	3.3	243.4	1,305.7
Beets, raw.....	42.5	0.31	250.6	19.3	1,484.4	7,113.7
Cabbage.....	16.0	0.38	101.6	14.5	348.4	1,930.5
Carrots.....	12.25	0.34	50.0	11.1	411.2	1,944.7
Celery.....	14.25	1.77	58.2	6.5	168.1	963.7
Corn, canned.....	30.0	3.12	381.7	163.6	2,590.1	13,359.6
Lettuce.....	20.25	4.23	110.2	27.6	266.4	1,754.8
Onions.....	49.5	3.47	314.3	67.4	1,998.3	9,857.0
Parsnips.....	53.75	2.13	317.0	97.5	2,633.1	12,677.9
Peas, canned.....	53.00	4.08	867.0	48.2	2,360.1	13,342.2
Potatoes.....	640.5	28.82	5,229.6	290.5	42,708.1	194,365.3
Radishes.....	7.5	0.38	30.6	34.0	136.1	972.8
Tomatoes, canned..	20.2	3.05	109.9	18.3	366.3	2,069.5
Turnips.....	44.0	0.66	179.6	20.0	1,137.6	5,448.8
Total vegetables..	1,013.7	53.85	8,369.8	845.3	57,630.2	271,607.7
Fruit:						
Apples.....	91.5	0.92	124.5	124.5	10,376.0	19,548.1
Apple sauce.....	2.0	0.05	1.8	7.3	337.4	1,422.5
Bananas.....	107.5	6.67	390.1	195.0	6,973.0	31,207.4
Blueberries.....	13.0	1.05	35.4	35.4	754.8	3,479.4
Grapefruit.....	55.0	3.85	299.4		2,370.1	10,678.0
Currant jelly.....	16.25	1.84	5.9		415.7	1,686.4
Lemons.....	10.5	0.70	33.4	23.9	281.5	1,474.7
Oranges.....	118.5	3.36	322.5	53.8	4,568.9	20,049.8
Orange marmalade..	7.3	2.24	19.9	3.32	2,807.9	11,610.0
Peaches, canned...	1.5	0.11	4.8	0.7	73.4	319.1
Plums, preserved...	9.25	1.04	21.0		2,521.8	10,171.2
Prunes.....	14.25	1.50	116.4		4,020.6	16,548.0
Raisins.....	5.0	0.24	59.0	74.8	1,726.0	7,813.2
Strawberries, canned.....	39.0	4.25	123.8		4,245.6	17,477.6
Total fruit.....	490.55	27.82	1,557.9	548.6	35,579.1	153,485.4
Miscellaneous:						
Almond paste.....	1.0	0.60	6.0	15.7	4.9	184.9
Catsup.....	0.5	0.12	3.4	0.5	27.9	129.7
Chili sauce.....	2.5	0.18	106.6	87.3	793.8	4,387.3
Chocolate.....	4.25	1.10	248.7	938.9	584.2	11,781.7
Cocoa.....	3.5	0.67	343.0	458.9	598.7	7,896.9
Icing.....	5.0	0.73			1,998.1	7,992.4
Maple syrup.....	18.0	1.66			5,829.7	23,318.8
Molasses.....	11.6	0.35	126.3		3,616.6	15,091.6

TABLE 1—*Concluded*

KIND OF FOOD	AMOUNT PURCHASED	TOTAL COST	TOTAL NUTRIENT AND ENERGY VALUE			
			Protein	Fat	Carbohy- drate	Fuel value
	<i>pounds</i>	<i>dollars</i>	<i>grams</i>	<i>grams</i>	<i>grams</i>	<i>calories</i>
Miscellaneous—Con- tinued						
English walnuts . .	0.5	0.21	37.7	143.9	36.5	1,591.9
Olives	18.5	1.70	66.4	1,676.3	705.6	18,179.2
Olive oil	5.75	1.35		2,608.2		23,473.8
Pickles	15.5	2.09	34.9	21.0	188.6	1,083.0
Baked beans	27.5	2.33	1,010.4	848.2	2,894.0	23,251.4
Granulated sugar . .	158.0	12.25			71,668.8	286,675.2
Powdered sugar . . .	1.0	0.08			453.6	1,814.4
Total miscellan- eous	273.1	29.58	1,983.1	6,799.4	89,431.0	426,852.2
Total vege- table food	2,391.9	150.4	41,132.4	14,157.7	355,034.4	1,712,087.7
Total, all foods	5,561.6	551.45	147,957.2	205,386.2	395,357.0	4,021,733.0
Total per person per day ¹	4.2	0.42	113.0	156.9	302.0	3,072.0
Total edible waste . . .	588.5		17,548.4	23,291.5	52,545.6	
Total inedible waste . .	868.5					
Total food eaten	4,104.6		130,408.8	182,094.7	342,811.4	3,531,733.0
Total food eaten per person per day	3.1		99.6	139.1	261.8	2,698.0

¹ Calculated from the total number of meals served, 3927.

TABLE 2

Amount of waste

	INEDIBLE	EDIBLE	TOTAL
	<i>pounds</i>	<i>pounds</i>	<i>pounds</i>
First week	352.5	247.5	600
Second week	516.0	341.0	857
Total	868.5	588.5	1457

TABLE 3

Analysis of edible waste

	PROTEIN	CARBOHYDRATE	FAT
	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
First week	6.4	19.8	10.0
Second week	6.7	19.6	7.8
Average	6.55	19.7	8.9

The average amount of inedible material in all common American foods is given in O. E. S. Bulletin 28 of the Department of Agriculture, and the theoretical amount as calculated from these figures would be 10.1 per cent, instead of the 15.6 per cent of our study. Strict agreement with the theoretical could hardly be expected however, as the amount of water added in the refuse may sometimes be very considerable. In order to ascertain more definitely in the case of one food how our inedible waste corresponded with the rather generous margin allowed in the Bulletin we had the potato parings weighed separately during one week and the percentage waste calculated. The average was found to be 27.5 per cent. A similar study at Lake Erie College² showed an average waste of 36.1 per cent, while the figures given in the Bulletin for refuse from potatoes is 20 per cent.

Fuel Value. According to the most moderate estimates the nutritive requirements of an adult person lying asleep amount to 0.5 calories per pound of body weight per hour; sitting quietly, or with only slight movements, 0.6 calories per pound per hour; standing, 0.75 calories; walking at a moderate pace on level ground, 1 calorie; at moderate exercise, 1.25 calories; and at rather severe muscular work 1.75 calories. So we would calculate that a girl such as our average represents, who slept eight hours, sat studying, at lectures, and chatting eleven hours, walked or stood four hours, and exercised actively one hour, would require a little under 2000 calories per day. We would probably be safe in saying that their requirements vary from 1900 to 2200 calories per day according to age, size, and activity. The faculty would come within the same range, the servants a little higher, but so little that their small number would not appreciably affect the general average.³

The food consumption as shown by our results (see table) amounted to 2698 calories per person per day. A similar, or even larger excess over the theoretical requirements has been observed in many cases, notably in Gephart's study of St. Paul's School, Concord, where the food consumption of the boys was found to be equal to the calculated requirements of men engaged in the most severe muscular labor, such as lumbermen or stevedores.

The following table compares the Vassar results with those obtained in various other studies. It may safely be assumed that the require-

² O. E. S. Bul. No. 91, p. 30. U. S. Dept. of Agr.

³ Rose, Feeding the Family. Pp. 47 ff.

ments of the students at the four women's colleges are about the same as those of our own students. For comparison we have included the averages of studies made of men students, of the families of professional men, and of the boys of St. Paul's School. It will be noted that our total calorific value falls fairly well within the average, but the proportion of fuel value obtained from protein food is high, and that from carbohydrate food correspondingly low.

TABLE 4

Fuel value of food consumed per person per day as determined by various nutrition investigations

	PROTEIN	FAT	CARBO- HYDRATE	TOTAL	FUEL OBTAINED FROM PROTEIN
	<i>calories</i>	<i>calories</i>	<i>calories</i>	<i>calories</i>	<i>per cent</i>
<i>Women students</i>					
Vassar College.....	398	1252	1048	2698	14.8
Lake Erie College ⁴	272	1037	1283	2592	10.5
Chicago University ⁵ (women's dormitories).....	432	1322	1523	3277	13.2
North Dakota Agricultural College ⁶	256	893	1440	2589	9.9
Wesleyan ⁷	336	1152	1056	2544	13.2
Average of 16 men ⁸ students clubs.....	336	1058	1488	2882	11.7
Average of 14 families ⁹ of professional men.....	333	900	1354	2587	12.9
Average of boys of ¹⁰ St. Paul's School.....	617	1685	2075	4377	14.1

These results, with the exception of those obtained at St. Paul's School, do not take into consideration the amount of food eaten between meals or outside of the College dining hall, a factor which must be recognized if the results are to be used in drawing conclusions as to the dietary habits of the individuals under observation. It is almost impossible, however, to get data of even approximate accuracy on this point under ordinary conditions. At St. Paul's School the matter was simplified by the fact that practically the only source of supply was a tuck shop under school management, but the college girl has access to innumerable tea-houses, and tuck shops, and usually patronizes them all indiscriminately. In order to get a rough estimate of what this amounts

⁴ Office of Expt. Sta., Bul. No. 91, U. S. Dept. of Agr., 1900.

⁵ Univ. of Chicago publication, Food as a Factor in Student Life. Richards and Talbot, 1894.

⁶ O. E. S. Bul. No. 91. U. S. Dept. of Agr., 1895.

⁷ Connecticut Storrs Sta. Rpt., 1894.

⁸ O. E. S. Bul., No. 91., p. 34. U. S. Dept. of Agr., 1893-97.

⁹ Ibid.

¹⁰ Rector's Rpt., St. Paul's School, Concord, 1916.

to we asked the Davison students to keep a daily record of all that they ate outside the dining room during the experimental period. Their lists make rather entertaining reading, but are difficult to standardize. We found that an average of 65 per cent supplement their college meals by more or less additional food, 10 per cent took their three meals in the dining-room and had nothing outside, while the remaining 25 per cent, a surprisingly large number, either missed a meal altogether or took it off campus.

As might be expected, there is the greatest difference between the habits of different individuals. They vary from the girl who ate one orange, but explained that she had had neither lunch nor dinner, to two young people who in one day consumed respectively in addition to their regular meals "one sandwich, four pieces of cake, a handful of popcorn, a one pound box of popcorn, two handfuls of salted nuts, two pieces of candy," and "three large pieces of candy, sixteen small pieces of candy, ten cakes, one cup of chocolate with whipped cream." The last item, we are told, was taken simply for the sake of being sociable. A young lady who had played basket-ball for an hour and walked for an hour found it necessary to sustain life in between whiles with "Half a grape-fruit, quarter of a pound of chocolate marshmallows, five hard candies (eaten from politeness), one box of Smith's cough-drops, one package of licorice life-savers, a tuna-fish sandwich, two pieces of fudge, and a piece of chocolate cake (for politeness)." One girl reported "Fifteen pieces of chocolate candy, one apple, one piece of white cake, and two marshmallow pecan cakes, eaten because Lent begins tonight" but the next day she had "one hot dog, four marshmallow pecan cakes, and half a devil sandwich," so she did not suffer greatly from her Lenten abstemiousness. Habit seems to account for more than any general nutritive requirement, as some few girls were found who habitually ate little or nothing between meals, although living as active a life and apparently as healthy as their neighbors who habitually ate much. Of course both classes were given to spasmodic orgies.

Their supplementary food was usually sugar in some form, candies, cakes, or ice-cream. It is a question whether this is due simply to the taste for sweets which is instinctive in all young people or is in response to a physiological need. We have already noted that the amount of carbohydrate food supplied to our girls is rather low. A few girls reported that they "feel hungry for candy after meals, especially after lunch." Another reports having added jam to the regular college din-

ner on one occasion. On the other hand one ate a half-pound of candy "because it was lying round and had to be eaten!" This seems to be a not infrequent reason for eating food of various kinds. Many ate "for sociability," many because they were hungry, a few because they disliked certain of the college meals, such as the fish luncheon on Fridays.

It is impossible to give even a rough estimate of the average fuel value of this supplementary food on account of the great variation. That it is not inconsiderable will be evident when we note that one piece of fudge of the usual size gives 100 calories, one sundae some 300 calories or more, and one piece of cake from 200 to 300 calories. The girls above referred to must have averaged well over 1500 calories apiece in addition to that which they obtained at their regular meals, but only one of them reported any exercise on that day beyond walking to classes.

Cost. The cost per meal of food alone was found to average \$0.14, the cost of food, preparation, and service, \$0.184. These figures cannot fairly be compared with those obtained in the majority of other cases on account of the great increase in the cost of living since 1914.

Practically all of the milk and vegetables used at the college are produced on the college farm. These are purchased from the farm by the housekeeping department and paid for at current wholesale rates.

TABLE 5

Comparison of relative expenditure for different foods at Vassar College and at other Institutions¹¹

	VASSAR COL- LEGE	LAKE FOREST COL- LEGE	UNIVERSITY OF CHICAGO	NORTH DAKOTA AGRICULTUR- AL COLLEGE	AVERAGE OF 3 WOMEN'S CLUBS	AVERAGE OF 10 MEN'S CLUBS
	per cent	per cent	per cent	per cent	per cent	per cent
Cereals.....	7.1	7.4	12.0	8.7	9.3	11.5
Dairy products:						
Eggs.....	6.3	2.5	3.0	6.1	3.9	4.8
Butter.....	9.1	17.8	12.8	14.5	15.0	11.8
Cheese.....	0.3	0.9	0.3	0.3	0.5	0.4
Milk.....	7.4	8.4	21.1	7.1	9.2	11.3
Cream.....	4.7	0.6	4.7		1.8	0.2
Total.....	27.8	30.2	32.9	28.0	30.4	28.5
Fish.....	3.6	1.8	2.5		1.4	4.0
Meat.....	41.3	32.0	30.3	35.1	32.5	29.9
Vegetables.....	9.8	7.8	7.1	5.2	6.7	10.0
Fruit.....	5.0	14.9	9.4	10.2	11.5	7.6
Miscellaneous.....	5.4	5.9	5.8	12.8	8.2	8.5

¹¹ Loc. cit.

TABLE 6

Percentage expenditure for nutrients, mineral matter, and waste in the staple foods used during the study

	NUTRIENTS	REFUSE	MINERAL MATTER AND WATER
	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
Sugar.....	100.0		
Cereals.....	75.0		25.0
Dairy products.....	41.0	2.0	57.0
Fish.....	14.0	27.0	59.0
Meat.....	36.0	19.0	46.0
Vegetables.....	14.0	14.0	72.0
Fruit.....	18.2	28.7	53.1

The relative amounts spent for certain staples are shown in table 5.

From the data in table 6 it is possible to compare the relative economy of the various articles of food. In making this calculation we have used the figures for percentage composition given in Bulletin 28.

"Fruit" in the above table refers to the common winter fruits, apples, oranges, lemons, grape-fruit, bananas, prunes, and raisins. It does not include canned fruits, jams, jellies, etc., which would give a higher value for nutrients on account of the added sugar present.

It is to be remembered that this table does not distinguish between fat, protein, and carbohydrate as source of nutriment, that it practically omits consideration of the food value of mineral matter, and that in order to insure a properly balanced diet it is often necessary to use the higher priced foods instead of those which might appear more economical.

Summary

Total number of meals.....	3,927
Total weight of food used.....	5,561.6 pounds
Total fuel value of food consumed.....	3,531,733.1 calories
Total fuel value of food per meal.....	899. calories
Total fuel value per person per day.....	2,698. calories
Total fuel value per person per day from protein.....	398. calories
Total fuel value per person per day from carbohydrate.....	1,048. calories
Total fuel value per person per day from fat.....	1,252. calories
Per cent of total fuel value obtained from protein.....	14.7 per cent
Total inedible waste.....	868.5 pounds
Total edible waste.....	588.5 pounds
Total waste.....	1,457.0 pounds
Total waste per meal.....	0.36 pounds
Total protein in edible waste.....	38.4 pounds
Total fat in edible waste.....	51.1 pounds
Total carbohydrate in edible waste.....	115.2 pounds
Total cost of food.....	551.45
Cost of preparation and service.....	174.16
Cost per meal of food alone.....	0.14
Cost per meal of food, preparation, and service.....	0.184

THE WORK OF THE DIETITIAN IN THE CANADIAN
MILITARY HOSPITALS

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I have been asked to explain the work of a dietitian in the Canadian Military Hospitals, and to allow the directions I have placed in the hands of each dietitian to be published. It is with much pleasure that I comply, hoping that in some way I may be of service in assisting the American dietitians to prepare for the day when they will have to face our problem in caring for their returned wounded soldiers.

The Military Hospitals Commission has at the present time over fifty military hospitals and convalescent homes, and several others under construction. These vary in size all the way from the small tuberculosis sanatorium of 50 to 75 beds to the large convalescent hospital of 1500 to 1600 beds. Possibly the most interesting point in all Canada for a dietitian is the big Discharge Depot at Quebec, where sometimes 2000 men are fed three times a day. A dietitian, with one assistant and two pupil dietitians, is in charge of all the food served to this large number. In 1918 there will be accommodations for between 18,000 and 20,000 convalescent soldiers.

At the present time dietitians are in twenty-one of the larger hospitals in complete control of the dietary department, and are being installed in the other hospitals as fast as competent dietitians can be secured and taught the cost accounting system in use in the Military Hospitals.

A dietitian can perform a work of inestimable value in planning attractive and well-balanced menus and in seeing that the preparation is such as it should be and the service good. Also by using a modern, up-to-date cost accounting system she can tell at the end of a week the average cost of a meal. Few institutions can afford to ignore costs; therefore, the dietitian largely controls the cost by selection of her menu.

Today there is a crying need for competent, executive dietitians wherever a large number of people are being fed. The name "dietitian" is associated in many minds with the work of teaching nurses and supervising their work in a special diet kitchen where the special diets and meals for private patients are prepared. This is the work of many dietitians and is of the greatest importance, but the modern,

executive dietitian has travelled far from this limited field of operation. Today she is in control and responsible for the food served to everyone in the institution, whether patients on special or regular diets, nurses, doctors, or employees.

Why should the food to the regular patient not receive the most careful attention? Often the variety has to be more or less limited on account of the cost; therefore all the greater need for a dietitian who will insist and demand that each article on the menu should be both prepared and served as attractively as possible. A menu that is faultless may be written by many, but the product may be "hopeless," because there are two places where it may be completely ruined, either in the cooking or in the serving. This is where the dietitian comes to the rescue. She can give detailed instructions (and what is more, see that they are carried out) to her cooks regarding method, temperature, and time of cooking, and she can so route the serving that the food is served hot or cold as the case may be.

Service is the great problem in the modern hotel. It is just as great a problem in a hospital, and all the motion study and efficiency management information available is needed to assist the executive dietitian to route her work in such a way that the everyday meal being prepared for great numbers is served attractively and well.

Conditions in military convalescent hospitals are quite different from those in a regular civilian hospital. Possibly 80 or 90 per cent of the men are up and walking around, only being kept there for treatment, rest, and diet. Each convalescent home has a large dining room and usually the cafeteria service is used for all except cripples and amputation cases. In the regular orthopaedic hospital, waiters are employed in the dining room, but in all others the cafeteria is being used. It saves labor and is more efficient and eliminates the possibility of cold food.

A copy of the following directions regarding the duties and suggestions concerning ideals, spirit, and the importance of details is placed in the hands of each dietitian.

OUTLINE OF THE DUTIES OF A DIETITIAN IN MILITARY HOSPITALS OR CONVALESCENT HOMES

1. A dietitian's position is that of a superintendent of her own department. She plans the menus, requisitions the supplies, plans the work for all employees, and is in control of that department, and every person employed in it.

2. She is responsible for the work of all cooks, waiters, and other helpers employed in the dietary department. She must assign their work to them supervise its execution, criticize the condition of their work-rooms, their uniform, their personal appearance, and conduct while on duty, arrange off duty time for each, and instruct them when needful.

3. She should inspect daily the condition of the dining rooms, kitchens, refrigerators, and equipment in her department (or, if unable to do this herself, have it done by her pupil dietitian). Only by the most careful inspection twice a day at least, can the dining rooms be kept up to the mark.

4. The dietitian will set the standard for cooks and waiters, and other employees, taste every single thing prepared for the main dining room, and see that the seasoning is correct, and the product satisfactory in every respect. She holds everybody in the dietary department up to the mark.

5. During the meals the dietitian or her pupil should supervise the serving, see whether the food goes out in the proper quantity, see that it is hot and served attractively, also that servers are working rapidly and in the most efficient manner.

6. The dietitian plans the work for all employees; this plan varies from day to day, according to the menu, number of employees not on duty, and the weather. (Cleaning program is chiefly affected by the weather.)

7. The dietitian or her pupil supervises the work of a special diet kitchen, where the bed patients' trays are prepared. General articles of diet come from the main kitchen, and are kept warm, but eggs and certain special articles are prepared in the special diet kitchen, depending upon conditions.

A FEW SUGGESTIONS FOR DIETITIANS

1. A dietitian's ideals and spirit should influence her whole department. It will soon be realized that she is striving to serve only food that is nourishing, easily digested, properly prepared, palatable, attractive, and well served, such as should be given to patients whose chief chance of recovery may be in proper diet. Everyone in her department must realize the importance of his or her work in assisting to carry out this ideal. The welfare and recovery of the patients is the goal to be kept constantly before them.

2. A dietitian should not only be able to manage the help, but it is quite as essential that she be capable of working harmoniously with the other officers of the institution, oblige whenever it is possible, and make everybody feel that she is the friend of the hospital, and doing everything in her power for the benefit of the institution. Confidence in the dietitian personally may mean everything to her success. She should master hospital etiquette and be strictly professional. The longer one lives in a hospital the more one will appreciate its significance.

3. In dealing with the help try to inspire respect for their work because it is one of the most needed elements in their life, e.g., many waiters actually suffer through lack of respect and appreciation for their occupation on the part of the public, and it stimulates and encourages them to discover that one appreciates the fact that it requires an exceptional degree of observation, memory, power to systematize, and speed, in order to be a good waiter. Understand your help and their difficulties. Give each employee his due respect and consideration and you will generally receive the same; in brief, apply the "Golden Rule." In planning their work do all your thinking beforehand, and never ask the wrong person to do a piece of work. An employee is often very sensitive about his dignity, and will walk out sooner than do a duty usually performed by a man a little lower down in the scale. If you discover a malicious trouble maker, remove him at once. One such may undermine your whole discipline.

4. Be equal to emergencies when every plan is upset without a moment's notice. A patient or guest cannot understand the cause if dinner is poor or unsatisfactory. He does not know that possibly the delivery failed to arrive, or the shipment was returned as unsatisfactory, or that the chef is ill.

5. A dietitian should train her pupil dietitian in every branch of administrative work in her department, so that she can plan the work efficiently, keeping in mind the variations in the menu, and number of employees available. The pupil should supervise the serving of food, issuing of supplies by storekeeper, and other activities, and learn to know what every employee should be doing each hour of that particular day, so that she may intelligently manage that department. She should also gain experience in buying or requisitioning in large amounts.

6. Use good business methods in planning menus. Always consider food values, but also popularity, cost, equipment, and labor available. Try to wisely combine all these as far as possible.

7. Use discretion and common sense in making your menus, and buying or requisitioning. There is as much danger in misdirected economy as in extravagance. True economy will strive for the best results, with absolutely no waste. Poor economy will economize on possibly one point, forgetting half a dozen others, e.g., in preparing creamed rice, you may save 5 cents per pound by buying a cheap rice, but it requires to prepare it the same amount of overhead charges, expensive service, milk, and eggs. Result of the poor rice—an inferior, unsatisfactory dessert, and waste. By using a good quality, the cost is increased possibly a fraction of a cent per order, but the result is entirely satisfactory and there is no waste. This illustration will hold good in many other instances that could be mentioned. A satisfactory diet will not be the cheapest, but it is the only thing that will meet the requirements of both patients and the public, and the ideals of the

Military Hospitals Commission. Finally study efficient methods and keep abreast of the times.

It is suggested that all dietitians should read "Shop Management" by F. W. Taylor, and "The Twelve Principles of Efficiency" by Harrington Emerson, as they contain many helpful suggestions. The successful dietitian must be enthusiastic and put her work above every other consideration.

Dietitians must never lose the sense of proportion. Put first things first, and certainly the most important thing by far is to see that the food is prepared in the proper way, with a maximum of attractiveness for the money expended. Have each single article on the menu as perfect as possible, both in preparation, seasoning, and appearance. This is the chief work of a dietitian. Criticize your chef. Your menus must be prepared according to *your* ideals not according to his, unless you heartily approve of his methods. You must set the pace for him. Issue your instructions through him to kitchen help, if you prefer, but insist that he has them carried out.

The attractive preparation of food is nothing short of a real social service. With the very sick it is often their only pleasure—they look forward to their three meals a day, whether their three meals are only liquids or a more elaborate menu, but what a sad disappointment, if on liquids, if the lemonade is not properly flavored, or lukewarm—or the soup is poorly seasoned. The well need just as careful consideration (aside altogether from the fact that scientists have found the secretion of gastric juice to be directly influenced by the palatability of food) because the three meals, particularly in a hospital, are the most important event in the day's program and no single individual in the whole institution can render as important a service as a wide awake dietitian who sees that those three meals go out as perfect in every detail as possible.

A dietitian's success depends almost entirely upon her appreciation of the great importance of the details. The details in a dietitian's work are the big things and no dietitian will be a true success until she fully realizes this.

Is your gravy an attractive brown color? Is it properly seasoned? Does your chef use the flavoring in his meat pans to the best advantage?

Are your soups varied? Is each one *always* tasted and criticized and approved by the dietitian before being served?

Are your vegetables seasoned and as attractive as possible?

Potatoes particularly should be carefully watched. Are they mashed well and beaten until like whipped cream—never soggy or heavy or yellow?

Is the porridge of the right consistency and properly salted?

If serving a fruit salad are all the ingredients in almost uniform sizes? Are the sections of orange diced and the whole as attractive as for the most expensive private ward? There is often no difference in cost except a little in supervision and labor. Vary your fruit salads according to the season of

the year. Occasionally a small dice of raspberry jelly or, in cherry season, raw cherries look attractive and are well worth while in increased variety.

All custards, blanc manges, bread puddings, cottage puddings, jellies, and baked rice can be prepared in the oblong baking dishes and cut into 24, 28, or 32 pieces according to the size of dish and thickness of the dessert. If serving a large number the greatest speed is attained if desserts are all cut first, then one man lifts each section with a slice and pushes off with a knife, while an assistant removes the dessert saucers as fast as he can serve. Speed and accuracy can be obtained and the servings are uniform and attractive. If a sauce is used a third party can serve it. Particularly in a large institution where a great number have to be served, system and motion study are necessary to save labor and get the best results.

Under no circumstances allow the bookkeeping and accounting end of your work to become the big end. The planning of menus, supervision, and regular tasting of everything is of vastly more importance, and the dietitian must never lose sight of this. Bookkeeping is done in between meals because a dietitian cannot remain in the kitchen constantly and she does not need to do so. Accounts are principally for the information of the dietitian. She can list the cost per serving of each article she serves and more intelligently plan her menus. Often the food values and the attractiveness are about equal between two dishes, but one considerably less expensive. A saving of one cent per meal through more efficient selection with a population of 250 people means \$7.50 a day or \$2737.50 saved in a year, and possibly quite as attractive and nourishing dishes, but selected so as to take full advantage of the season of the year and market conditions.

A large part of the routine of the bookkeeping should be done by the pupil dietitian, because in some institutions (depending upon the chef) the dietitian in charge will have to give most of her directions personally. The pupil must be accurate, otherwise she will not be fit to assume control of such an important enterprise later. The chief dietitian analyses these cost reports, possibly assists on them, but must not be lost in the detail, or neglect her more important duties. The dietitian plans the menus and will usually make out the requisition, but the pricing and deduction from stock cards and entry on spread sheets can largely be done by the pupil dietitian leaving the dietitian in charge more time to analyse results and study prices and think out improvements to increase efficiency in her department.

If possible interest some of the local societies or school children in your department so that your dining room can be constantly supplied with either cut flowers, flowering plants, or ferns. The bare appearance is removed from the dining room and quite a different atmosphere created by flowers.

THE PROJECT IN HOME ECONOMICS TEACHING¹

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DEFINITION OF THE PROJECT

An examination of the pedagogical literature of home economics, as well as of agriculture, mathematics, and the physical, biological, or social sciences reveals, on the one hand, an almost complete lack of unanimity upon the meaning of the term project, and, on the other hand, a rapidly growing use of the term in the discussion of both the curriculum and methods of teaching.

It is, perhaps, too much to expect that the term has been used for a length of time sufficiently extended to permit of a definition which will be generally accepted; but it is imperative that each writer define as clearly as he can what he believes to be the denotations and connotations of the term.

In this paper the project is considered to be an act carried to completion in its natural setting and involving the solution of a relatively complex problem.

Four terms of the definition should receive a few words of explanation.

First, the project is a problem. This differentiates it from reflex and habitual acts such as digestion and respiration which are normally carried on without the intervention of consciousness, or from knitting or dishwashing when they have become habitual. Any of these may become problems, as the control of respiration to the singer, or knitting to a novice. They are problems when they require thought but when they are reflexive or habitual they are no longer problems.

Second, the project is a relatively complex problem. Problems have many degrees of complexity. The holding of a paring knife, the placing of a glass on a shelf, or the closing of an oven door, are problems whenever they involve any modicum of thinking. On the other hand, such complicated actions as the preparation of a roast or the canning of fruit are equally problems when they involve any degree of thinking.

It so happens that in the laboratory a complex problem may be so presented to a class as to make it appear to them to be a number of

¹ Presented at the meeting of the American Home Economics Association, Kansas City, February, 1917.

isolated problems rather than as one complex problem consisting of a series of subordinate ones. For instance, a teacher who expects the class to can fruit may pursue two plans. She may set before them the complex problem of fruit canning and start them to work upon its solution step by step and in the treatment of each of the steps may disclose its bearing upon the final outcome. This can be done by raising the problem, "How is the canning of fruit carried on?" The students may then analyze the process and discover that it involves, for instance, sterilization and the use of air-tight receptacles. Sterilization may be in turn taken as a problem and analyzed into such elements as temperature, and the life habits of mold. In this process of analysis the teacher starts from the outcome, canning, and works through the subordinate problems one by one and in each case makes clear to the class the bearing of each upon the final outcome.

Or, on the other hand, the teacher may teach the use of the thermometer, the life history of molds, the degree of temperature necessary to kill molds, and the construction of air-tight receptacles without making the students conscious of their bearing upon canning; and later the canning may be taken up as an application of all the individual factors which have been studied as isolated problems.

It is thus possible for a portion of subject matter which appears as a complex problem to the teacher to be a series of isolated small problems to the students. But the term project, as will be seen more clearly before the end of our discussion, applies to the complex rather than the simple problem although we are able to divide a large project into a number of subordinate ones.

Third, The project contemplates the solution of a complex problem as one step toward carrying over of the fruits of the solution into some form of action. For instance, it is possible to introduce the class to the complex problem of fruit-canning, to view it as a complex of subordinate problems rather than an agglomeration of isolated problems, to teach the steps in the process and the reasons for each, and stop at that point without completing the act of canning. This is the theory of canning without the practice. It constitutes the solution of a complex problem but is not a project because by the definition of the term performance of the act is necessary.

While the canning of fruit which we have used as an illustration is usually carried over into practice in the laboratory, there are many facts of home economics which frequently are left in the field of theory.

For instance, because of the difficulty which many schools have in obtaining the equipment necessary to carry into practice theories of sanitation or inside decoration, it is probably safe to say that in almost all high schools these problems are not carried through to performance. The students study how to furnish rooms but do not furnish them.

It is possible, as has been said, to present the problems of these and other portions of subject matter as complex problems with subordinate problems connected in a trend of thought leading to a final solution. Such problems of a complex sort may be called "multiproblems." They are distinguished from simple problems by their relative complexity and from the project because they are not carried over into action in a natural setting.

Fourth, in order that the multiproblem which is carried over into action may become a project it is necessary that the action be completed in its natural setting. The term, natural setting, is full of difficulties of definition when carried into the interior of any body of subject matter, but for our purposes it is relatively simple, as an illustration will make clear. The multiproblem of canning may be carried into the field of practice by the canning of a small amount of fruit in small utensils, and the student may learn the practice of canning or perhaps it is better to say obtains a simple illustration of the practice. But this is not the natural setting of the action. The amount of the fruit is unusual. If the student were canning at home she would have to can a peck or a bushel and would have to use several jars. The process is also unnaturally simple. If she were canning a bushel of fruit she would probably have to simultaneously watch a fire, get many jars ready, find proper places to set them or attend to one portion while another is cooking. In addition to this merely technical process she would have somewhat in mind before the canning began the social problems of preparing food for winter, of pleasing her mother or her father or her prospective guests, of demonstrating that she is a good housekeeper, or of earning some money for student activities in the high school.

The project idea as I have defined it contemplates the performance of an act in as nearly its natural setting as possible. The project seems to be an attempt to return to the concrete conditions of home education from the abstract isolation of the school. It presupposes natural activities flowing in spontaneous currents. Problems arise; they are analyzed and solved and are made to perform their intrinsic functions in actual situations.

THE PROJECT AND THE CURRICULUM

There are at least three bases for the construction of a home economics curriculum—principles, processes, and projects (or multiproblems). If the latter is selected as the basis, either in the form of multiproblems or projects, an unsystematic hold upon the subject matter results. Only what is needed for the project is used and it is used only in the order needed. It is conceivable that with a change in projects the parts of the subject matter studied might be appreciably different.

If the project is to be made the basis of the curriculum it is necessary for the teacher to decide as scientifically as possible what principles and processes should be mastered by the student and then to select not single projects but groups of projects so arranged that election of projects is made possible with the certainty that all essential facts, processes, and principles will be covered. Then when the principles and processes have been covered by the project method in class, enough time should be left in the course so that the subject matter may be systematized. First, the project is used for the approach to all parts of the subject, and then a systematizing study of the field follows as an extended summary.

ADVANTAGES AND LIMITATIONS

It is claimed that the project method has three outstanding advantages and one important limitation.

The advantages are described as follows:

First, the natural setting provides a strong motive—canning fruit for the family is more interesting, we will say, than cooking a little fruit in a small laboratory utensil. Treating the mold on fruit "I have canned for winter use" is more stimulating than studying molds as ends in themselves. Studying sterilization to use immediately in putting up fruit for friends has much more appeal than merely studying sterilization as a class exercise. Tying the process to outcomes and beginnings of a varied and intensely fundamental sort tends to produce a great spontaneous interest. All projects are not interesting to any one student, but if a project is selected so as to be of interest, the degree of the interest is likely to be very high because of the setting in the experience of the student. It is claimed that when the project is interesting, it is very interesting.

A second advantage claimed is that the natural setting and the great multiproblem with its coherent subordinate problems make the intellect

function in a fuller tide of activity. The strong initial motive and the constant side lights from practical conditions and immediate practical outcomes make the student think with a higher degree of effectiveness.

The acquisition of skill in carrying out processes in actual practice is a third advantage claimed. After the student has learned fruit canning or bread making or hat designing in school as a project she is able to can fruit, make bread, and design hats at home. She does not know mere theory; she has learned the method of performance. The advocates of the project method assert that after the theory is learned there is a wide zone of danger in carrying out the solution, a zone full of difficulties which may ruin the effectiveness of the performance. They point to the fact that some students of home economics whose mastery of the theories is conceded by the most critical, are very inefficient homemakers. These advocates explain this by saying that the performance of the act itself involves a very important technique which needs as careful attention as does the solution of theoretical problems or multiproblems. Nor can it be any more safely left to chance, they say, in the expectation that the student will pick it up for herself at some future time than can the learning of the theory. It is essential to a successful hold upon the subject.

The advocates of the project claim further that the performance of the act involves not only the theory and practice of the technique of performance but also the very essential desire to perform the act under home conditions. They claim that a student may solve multiproblems of house sanitation with marked ability and still have no desire to make her own home sanitary or, at least, no desire strong enough to stimulate her persistently until the home is made sanitary. This making of the desire concretely effective, which is included within the project method has, they say, a technique for its mastery as difficult to learn and as necessary to be taught as the solution of the multiproblem or the performance of the act.

The chief limitation of the project method is its failure to provide a systematic organization of the facts and principles of the field of study. Facts and principles are acquired only as they are needed in the performance of the project and in the order in which they are used in each particular project. It is, therefore, conceivable and likely, indeed, in actual operation, unless care is taken, that some important facts and principles will be omitted, and those studied will not be seen in their logical relations except possibly by a few of the more gifted.

To send a student forth into the practical situations of life without a systematic organization of a subject, if he is of sufficient maturity to grasp it and if the time at the disposal of the teacher is sufficient to provide for it, is unfortunate. Therefore, it is necessary if this limitation is to be overcome, that the project study of any group of facts should, under proper conditions of maturity and adjustable time limits, be supplemented by a systematic review of the field. This holds equally true of the multiproblem attack.

In brief, the project method presents the machinery for unusually strong interest, for a fuller tide of intellectual activity, and for the development of the technique of practical performance and desirable attitudes; but it needs to be supplemented under the proper conditions by a systematic organization of the facts and principles included within the field. That it is universally applicable is neither certain nor likely; but that it should be experimentally used for the purpose of determining where it will work efficiently, is highly desirable.

EAT VEGETABLES AND SAVE BREAD

There are large supplies in Canada of potatoes, carrots, and onions in excess of the amounts normally consumed by the people of this country. These vegetables are all wholesome food and it is a small but necessary war service for the people of the Dominion to increase their consumption of these commodities and to eat less bread, meat, and other foods which are so greatly needed overseas. Unless Canadians will use more freely the vegetables of which we have a surplus supply, large stocks will be wasted—and, at a time when there is such need of food in Europe, waste would be nothing short of criminal. Eat more of the vegetables in order to save exportable food for the soldiers and the civilian populations who already know the meaning of food shortage.—*Canadian Food Bulletin, Ottawa, January 26, 1918.*

CONSERVATION AND CLUB WORK

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In club work with the boys and girls of the land, there is a greater opportunity for laying the real foundation for genuine and thorough conservation than in any other field of endeavor. As the twig is bent, the tree inclines, and as the first ideas of saving, not from the initiative of hoarding or stinginess, but for the purpose of thrift and from humanitarian instinct are instilled in the minds and hearts of boys and girls, there will develop results which cannot be obtained otherwise. With them, there are encountered no idiosyncrasies due to years of experience, no ruts have been worn, but they are ready to learn. To them fat can be mixed with flour for piecrust with a knife or with a fork equally well for they cannot say, "Oh, I've always done it this way." Even the young wife knows too well the effect of mother's biscuits. In vain she tries to make ones "like mother used to make" to cater to the masculine palate. All are creatures of habit. All have standards due to past experience. Therefore, in club work with young people, nothing hampers the possibilities. Starting then with inexperience but with youthful enthusiasm and the devotion to a cause, it is easy to develop the future workers.

The opportunities in club work at this particular time all focus on conservation. Conservation of food, of clothing, and of coal. Posters everywhere say use less fat, less wheat, less sugar; save the wool for the aged, the babies, the soldiers; save coal by keeping the house cooler, burning less gas and less electricity. Minds become calloused to inanimate entreaties. They are no more conscious of them than noises in the street which day after day make no impression. It is necessary to keep prodding, and dress up the appeal in new words. The necessity for conserving staples calls for substitutes. The ease of finding substitutes is not equaled by ease in using them. Originality on the part of the teacher or leader, plus the enthusiasm or magnetism which makes the youth desire to follow in his wake are the factors which will bring success.

Two obstacles have been hard to overcome. The substitute should be desirable, and, to make popular appeal, it should be cheaper than that for which it is substituted. Corn, for instance, is found less palatable to the majority than wheat, and harder to use. In many cases,

it has cost more than wheat. A way must be found to use corn, and since the purpose here is to save wheat and not a quarter of a cent, the money factor must be discounted. In using butter substitutes, there is a saving of money. Oleo at 35 cents a pound and butter at 57 cents would easily allow one to pay a fraction more for corn meal than for wheat flour. When the food administration has continued a little longer the work so admirably begun, the regulation of prices will tend to remove the objection that the substitute is more expensive than the original foodstuff. It is only natural to have objections arise when fish is more expensive than beef and furnishes less energy material for the money.

Conservation and thrift go hand in hand. Thrift makes conservation possible and efficient. The saving of materials and the saving of money have a delicate adjustment. The emphasis on the last may weaken the cause of conservation. Thrift manifests itself in three ways—saving materials, saving money, saving labor. The foodstuffs satisfactory for transportation and absolutely essential for the maintenance of the army abroad and the civilians of foreign countries must be saved. Figures recently compiled show that the world's wheat crop for the last year is 14 per cent, that is, 1,868,000 bushels below the five year average. Corn has increased in amount equal to the deficiency in wheat. Oats have gained 14 per cent, rice, 16 per cent, potatoes, 12 per cent. The conclusion is obvious that we must use corn, oats, rice, and potatoes and less wheat.

The saving of money through the elimination of non-essentials is thrift. It means that such money can be diverted from former channels to the purchase of Liberty Bonds and Thrift Stamps. Ceasing to buy fabrics, home furnishings, clothing, toys, candies, which can be dispensed with, releases labor for activities directly contributory to war efficiency. Everyone who can do something which previously was done by a paid worker can feel he is filling a vacancy made by someone called to serve. The transition of the released worker to the new employment may not be directly observable, but it does occur. In this way, children are to help out. Their energy can be harnessed and much done by them to carry the additional tasks laid upon the home.

Boys and Girls Club work takes away the stigma of child labor. It is pleasure and fruitful activity coupled. It accomplishes two things. It makes the child an asset by training him and through the child it reaches the parents and stimulates them to use and conserve. A girl can

be taught to make a new bread and the mother's pride in her accomplishment means a war bread used which would not have been used before.

There are two things which ought to be worked for to make conservation efficient. Definite patriotic standards is the first. Bread charts and bread scores have been established which for years have stressed the fine points of a perfect loaf. No longer is the same loaf attainable. The new milling rule requiring a 74 per cent yield instead of a 60 per cent has changed the breadstuff. Elasticity of the protein constituents determines size and lightness of loaf. Fine milling affects the starch content and determines whiteness of the loaf. These factors are losing their place. Palatability and flavor are less affected. Could not new scoring factors be introduced, giving a valuation to percentage of mixed flours used and taking into account the increase in mineral nutrients furnished by a use of the whole grain?

Second, eliminate the white loaf. So long as there is on Tuesday the old perfect loaf, just so long will there be discontent on Wednesday. Comparisons are always odious. Make the path easy for the war bread if it has to be made easy. Besides the slogan, "a wheatless day," adopt the slogan "no day an all-wheat day" or "no bread an all wheat bread."

There are many objections to such a suggestion, but they are foundationless. Some say they do not like these war breads. But from several places the report has come that never before have such good breads been served as this winter when mixed flours were used. This shows that with care and effort a good product results. Others say that they cannot eat cornmeal, they dislike buckwheat, and rye is disagreeable. Digestive disturbances are not due to these wheat substitutes. They are all satisfactory in food values, and can be safely used. It has been shown possible, by feeding experiments with animals and human beings, to exist on these grains as part of the diet in a much greater proportion than they would be used in the home. There are advantages in using them, for the wheat substitutes are less highly milled and furnish more mineral and fat than does white flour. The use of mixed flours gives greater variety in breadstuffs and means additions to the home table to be welcomed and not merely tolerated.

PATRIOTISM AND FOOD

From The Food Problem¹

Patriotism and food! Winning a world war by eating corn and chicken instead of wheat and beef! It will take much education to get this point of view. An army of food-savers does not appeal to the imagination at first consideration. But remember the large words of M. Bloch: "That is the future of war—not fighting but famine."

Germany is fighting not only with armies of men in field-gray but with greater armies of un-uniformed men, women and children; the civilian armies of workers and food-savers. Germany is fighting as a whole people, a whole nation mobilized. Germany is fighting to win a war that was to have been all conquest and glory, and is now all *Durchhalten*. In this fighting and *Durchhalten* Germany has lifted food to all the importance that M. Bloch prophesied for it. She is struggling to hold off famine from herself and to assure famine for her enemies. Germany controls food, saves food, stretches food, as no nation ever did before. That she has not already been beaten is due no less to her food organization than to her fighting organization. She has put patriotism and food together. So must we.

It is a time of rare and glorious opportunity; a time in which prosaic business and industry may be lifted up to the high plane of national service. And it is being so conceived in many quarters. The editor of a millers' journal puts it well for his miller and baker readers when he says: "He who grinds a barrel of flour or makes a loaf of bread to the glory and the good of the nation, forgetful of self, performs his duty in a spirit of devotion equal in its way to that of him who goes forth to actual battle."

And just as business and industry can perform their national service by putting patriotism and food together, so can we who serve our households and public dining-rooms; and so also can we who eat—in a word, all of us. There is no magic way to making food win the war. It can be done but in one way, the way of voluntary and eager resolution and action of the whole people, each group and each person according to the measure of his opportunity and means; a matter of daily personal service on every farm, in all the places through which pass the great food masses, and, finally, in every little shop and every kitchen and at every table in the land.

¹ For a review of this book see page 139.

It is not a sordid association, patriotism and food. It can be as fine as the spirit of democracy and as ennobling as the struggle for democracy. For it is, in truth, in these days an essential part of each. If we cannot organize our effort in this world crisis by the individual initiative, spirit and consent of the people, then democracy is a faith on which we cannot stand. For autocracy has shown that it can organize its effort; it does it by imposing organization by force, from the top. We must do it from the bottom, and voluntarily. The administration of food is a test of what our form of government is worth. If success in it did no more than insure its immediate aim, providing our Allies with food, it would be wholly worth while. But it will do more than that; it will prove our faith in ourselves.

THERE IS NOTHING NEW UNDER THE SUN

Mixed breads and weighed rations have the authority of a long ancient past. Nearly 600 years before Christ, Ezekiel gave the people of Israel this message:

Take thou also unto thee wheat, and barley, and beans, and lentiles, and millet, and fitches (spelt), and put them in one vessel, and make thee bread thereof . . . three hundred and ninety days shalt thou eat thereof.

And thy meat which thou shalt eat shall be by weight, twenty shekels a day: from time to time shalt thou eat it.

Thou shalt drink also water by measure, the sixth part of an hin: from time to time shalt thou drink.

Moreover he said unto me, Son of man, behold, I will break the staff of bread in Jerusalem; and they shall eat bread by weight, and with care; and they shall drink water by measure, and with astonishment.

—Ezekiel 4: 9-11, 16.

FOR THE HOMEMAKER

WHAT WE SHALL WEAR THIS YEAR AND NEXT

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What we shall wear in the months to come is always an interesting matter for speculation, but this year, when there is such a general textile upheaval caused by the World War, the subject becomes not only interesting but a matter of serious import.

Few persons realize the very small amount of textile fibres which can be purchased by our clothing manufacturers or the causes which have brought about such conditions.

Those of you who have done much Red Cross knitting know how difficult it is becoming to procure yarn for that purpose. This is because there is so little raw wool on the market, and so much of that is being commandeered by the government for soldiers' uniforms and blankets that there is very little left for other use. For some time there has been a marked decrease in the amount of wool grown in this country. There are now 15,000,000 less sheep in the United States than there were in 1903. This decrease is due to the rise in land rental and to the higher wages which must be paid to the sheep herders. The government in time past allowed sheep to graze on the big ranges without charge, but now the large tracts of land are being broken up into smaller holdings and fences are required which are expensive and require much labor to keep in repair. This has discouraged the sheep growers. They have gradually gone out of business and have taken up a less troublesome means of livelihood. A More-Sheep-More-Wool Association has been formed recently which met in Philadelphia on the eighth of November to discuss the problem and to devise measures to relieve the situation.

Before the war the United States grew only two-thirds of the wool used in our mills, and the remaining third came from abroad. Now none is imported except from South America, for the Allies have use for all they can get. Besides that used for uniforms and blankets, millions of yards of worsted cloth, costing \$3 a yard and known as shalloon and

shell cloth, are being used in bagging or covering both the propelling and explosive charges for the big guns. Every bit of wool used in this way is entirely destroyed.

Even if there were an abundant supply of raw wool, however, the supply of yarn would certainly be limited because of the scarcity of labor. The draft has taken spinners from the mills in great numbers and new workers must be trained before they can use their hands skillfully. This situation has troubled the Allies for some time. France is now trying to get Japanese weavers and textile operatives to come to that country to work in the mills which have had to be closed because of the scarcity of workmen.

For these and various other reasons it seems very improbable that there will be much wool to be worn by the civilian population next year. It is not likely that the Government will have to take measures to restrict the amount of wool used in manufacturing civilian clothing or enforce any change in the present way of doing business along that line. People will probably be able to get what they are willing to pay for, but the prices, based on the available supply, will be so high that they will not care to pay for all wool cloth. Instead, they will buy cotton and wool material which is now being woven in great quantity for the spring trade. Manufacturers have estimated that 25 per cent of raw wool may be saved in this manner. The material will have the appearance of all wool because the cotton is placed in the inside of the yarn, or on the back of the cloth. This the public will pay for at all wool prices and will be extremely thankful to get it when they compare their lot with that of the German civilians.

In Germany the aspirant for wearing apparel must go to the New Clothing Bureau in the district police station. There he is carefully questioned as to the amount of clothing which he already possesses before he is allowed to buy more. One suit, one hat, one pair of shoes, and two suits of underwear, only, are allowed at one time. They must be worn until they are absolutely worn out. Appearance, style, and fashion are things of the past with the German people.

The cotton situation is almost as bad as the wool situation, although the United States has the advantage as it grows more than half the cotton in the world. But even though there is a good supply to draw upon the war need is so great that the price of raw cotton has risen to alarming heights. This is not surprising when you consider that a bale of cotton is needed to fire one of the large guns, vast quantities are used

for the unbleached muslin and gauze used in Red Cross work, and a still greater amount is commandeered by the government for khaki uniforms and tents. For this reason when the cotton demand is considered it is doubtful if the use of cotton instead of wool for clothing can prove to be as much of an economic saving as at first seemed possible.

The use of linen as a substitute is more impossible still. Millions of yards of linen are needed for *aëroplane* wings, for it has been found to be the most satisfactory of any fibre for this use because of its strength. Cotton would be good for *aëroplane* wings as it is very elastic if it were not for its lack of strength and if it were not so inflammable, due to the oil contained in the fibres. Experiments are now being carried on by the Government to devise some way in which strength and fire proof qualities may be added to cotton. If that were possible then more linen would be released for surgical dressings and for thread for the army shoes. So far, cotton thread has not proved strong enough to stand the strain.

The reason for the shortage of linen is that much of the flax of the world has been grown near the German border and has been trampled down and broken by the warfare which has been going on there. Some flax has also been grown in Belgium, especially around Courtrai and that also has been ruined, as well as vast quantities which had been placed in the River Lys for retting before the German invasion. There is practically no flax grown for the fibre in the United States, so linen as a dress material will probably be out of the reach of most American buyers by next year.

Most of our silk comes to us from China and Japan and so the supply of that material should be little influenced by the war. At the present time the government uses silk only for balloon cases, but a series of experiments are being conducted at the front which may result in the use of all the silk which it is possible to procure. As the boys "Somewhere in France" are sent into the trenches they are provided with silk underwear. It is thought that silk will prove to be gas resisting and also will be less irritating to the wounds than cotton when driven into the body by shrapnel. For this reason the use of silk for suits and dresses will probably be restricted.

As wool, cotton, linen, and silk comprise the list of fibres which are commonly used for clothing, and as each has, or will have its place in war use, the result is that we in the United States who cannot take an active part in warfare must do our bit by conserving the supply of textiles.

The manufacturers will help us to do this by using as little material as possible in their ready to wear garments. Skirts will be comfortably narrow, suit coats will be short, single breasted with small lapels and collars. Ornamental revers, patch pockets, and belts will be eliminated. Conservative styles will be in vogue because people will know that whatever they buy this year they must expect to wear much longer than usual. They will realize that they would soon tire of extreme clothing.

Fashion and style to the average person seems rather a capricious subject governed by a few artists or dress designers in Paris. But in reality it is the reflection of a definite economic condition of the country or the world. In times of luxury people always wear extreme clothing. For ages past women have advertised the size of their husbands' pocket books by the clothing which they wear. For it is easier for a man to display his wealth by spending it upon the clothing of his wife and children than in any other way. This may be done by jewelry and also by means of clothing which is distinctly not utilitarian. The wives and daughters of the men of the Orient bind their feet to show their helplessness—their husbands and fathers proclaim to the world by this means that they are able to support the feminine members of their family in idleness. In our so-called more enlightened countries the women wear hobble skirts or long sweeping garments as well as high heeled shoes to show the ability of their husbands to support them in luxurious ease. It is manifestly impossible to the observer for any woman to scrub a kitchen floor in a trailing gown or to do a day's washing in a hobble skirt.

In times of luxury people always wear extreme clothing,—clothing which hampers freedom of movement such as hobble skirts, or tight skirts, or which are so voluminous that they get in the way. In the last few years the people of the United States have been especially prosperous; men have had enough money to buy automobiles, to pay for after theater suppers and to buy quantities of candy. With the use of automobiles and extravagant eating people grew fat and lazy, and as it is one of the general principles of dress design that full loose clothing is most becoming to a stout figure so very full skirts and coats naturally came into fashion. When women, because of the war, find that they must give up the use of automobiles and are obliged to go out into the world to do some definite work which their husbands and brothers who are now in the trenches have been doing in the past they will lose their

superfluous fat and grow slender again. That will be another reason for the popularity of the more tailored close fitting costumes.

All women will not be able to go out into the world to do definite war work. Some will not even be able to spend their afternoons at the various Red Cross branches. The duties of home and children will keep many tied down to more prosaic and perhaps less romantic work. For them mending and remodelling will be revived as a lost art, for during the next year we shall find that we must not only conserve in the textiles which we buy but also in the textiles which we already have stored away in our attics in the form of old clothes. The woman who has hoarded outgrown garments may find reason for rejoicing.

HELP THE HOUSEWIFE

LILLIAN P. RUSSELL

Every day one reads the familiar words that look out at us from store windows, confront us on posters, or greet us in the morning paper, "Help the Red Cross, Help the soldiers to win the war." May the name of housewife be added to the list of those needing help, for if the "war is to be won in the kitchen" then every one should have a part in the victory.

In many homes the planner of meals, whether she be the mother, older sister, aunt, or housekeeper needs just the support and encouragement which can be given by those for whom she is planning meals. She is doing her "bit" by getting the greatest value for money in both food and fuel. In her plans for "backing up Hoover" she provides war bread three or four times a week. Is it fair that she should be the one to eat up all leftovers, cold muffins for instance? The writer has experimented a little in that line, and has put on the table a plate of white bread and corn meal muffins, both a day old. Those of the family who for years have professed a fondness for cornmeal will invariably take the white bread and leave the other for the one who knows she must eat it or plan some "camouflage" in order not to waste it.

When bread and gravy or bread and jam are served, would it not be more patriotic to do away with the butter or butter substitute than to

use both at one time, even though one may have a special fondness for such dishes? The suggestion is naturally made that both need not appear at the same meal. That is very well if the planner of meals is the "money getter" also, but when others are perhaps paying for the food and demand "the best," the housewife needs the help that could be given by the little sacrifice entailed in curbing the appetite.

The sugar shortage has been a fine test for those trying to lighten the burdens of the housewife. Each one should ask himself the question "Did I help or did I make it just a little harder by demanding sweet things?"

One mother was forced to say that unless the members of the family took less sugar in their coffee she would have to sweeten the whole amount of coffee to be used, taking the sugar out of their reach. Perhaps she believed that "out of sight is out of mind."

But it is not fair or just that the housewife should do all the sacrificing for the entire family. She, of course, is the one most directly anxious to conserve food, and what a wonderful conservation there would be with the combined efforts of the family behind her. She could accomplish unheard of wonders in the culinary department.

At the beginning of the National Food Conservation Campaign, one of the speakers at a meeting said that the men were to be asked to sign a pledge, saying they were willing to aid their wives in their plans and methods of Food Conservation. How many of those pledges were signed? Far fewer than were signed by housewives is the belief of the writer. Yet it is only when the men of the family help as well as the children, that the work of conservation can be carried on effectively in the home.

Nor should it be necessary for the housekeeper to resort to tricks to disguise the substitutions she makes. The whole family should coöperate, and each do his share toward the saving of waste, the using of the necessary substitutes, and the clean plate. The lettuce under the salad, the crust of bread, the piece that used to be left for "manners," all should be used as a matter of course. The housemother's difficulties with the new 50-50 rule should be lessened by suggestion from the family and winning compliance, rather than increased by complaint and fault finding.

SERVING MEALS WITHOUT WHEAT

The loyal housekeeper has for the last few months been doing her best to substitute other grains for wheat. She has learned to like yeast breads made with one-fourth or one-third substitute flours or even 50-50 or perhaps she has used rye bread containing no wheat. Now a more difficult situation confronts her. Rye, next best to wheat for bread-making, is no longer more available than wheat, and wheat is so scarce that a definite allowance has been made of one and one half pounds a week for each person, this to include all wheat products; macaroni, wheat breakfast foods, bread, pie, cake, whether made at home or purchased at the bakery. This means one-fourth pound a day of victory bread (about four slices) with one-half pound (2 cups) of flour a week for any other purposes. Moreover since there are many people, especially among the working classes, who have depended very largely upon bread and will find it exceedingly difficult to adjust themselves to this program, it behooves everyone who possibly can to get along with less, even to the point of using no wheat at all.

Ways must be devised for using other things in the place of wheat. The simplest thing to do is to use more potatoes, hominy, rice, oatmeal, in place of bread. It is surprising how quickly one can become adjusted to such changes in the diet.

Double the usual portion of cereal for breakfast and serve no toast; for luncheon use rice, plain, cooked in milk, with raisins or dates, scalloped with cheese (with no flour thickening), seasoned with tomato, or mixed with meat; or use some form of corn as fried corn meal mush or hominy prepared in various ways like the rice, or use potatoes, but do not use bread. For dinner a double portion of potatoes, or potatoes and sweet potatoes, potatoes and rice, or potatoes and hominy will take the place of bread. Use barley flour, cornflour, cornstarch, rice flour, or rice water for thickening soups and sauces. Use barley, tapioca, or peas or beans, in soup, instead of macaroni or spaghetti and serve no croutons or crackers. Use for dessert fruit in various forms, gelatine dishes, or rice and tapioca puddings. Your bill of fare has been changed, little has been added to your labor, and wheat is saved.

If you can put in a little more time and want greater variety learn to use the other flours without any wheat in quick breads such as muffins and baking powder biscuit and in cake.

The Food Administration in an experimental laboratory, in coöperation with the Department of Agriculture, is working out some general

rules for substituting these flours so that you can use your own recipes and know how to modify them.

A good standard or basic rule for muffins is: 1 cup of liquid, 2 cups of flour, 1 tablespoon of fat, 1 tablespoon of sugar, 1 egg, 4 teaspoons of baking powder, $\frac{1}{4}$ teaspoon of salt. All muffin recipes are modifications of this. If sour milk is used a little less flour is needed (about $1\frac{3}{4}$ cups) and $\frac{1}{2}$ teaspoon of soda must take the place of half the baking powder. If a richer muffin is desired fat and sugar may each be increased to 3 tablespoonfuls. Sugar may be increased or lessened or corn syrup may be used in its place, and the egg may be omitted. This will change the character of the muffins somewhat but will not change very much the general proportions.

In using other flours for wheat, an equal amount *by weight* should be used. It is perfectly easy to leave out one fourth, or one half, or three fourths of the white flour and add in its place an equal weight of barley flour, buckwheat, rice flour, fine corn meal, or other flours. With care and a little practice any one of these can be used in place of all the white flour. The coarser uncooked cereals seem not to be very satisfactory if substituted for more than one fourth of the flour, but often such a cereal as rolled oats may be run through a hand mill and be used like the fine flour.

For those who have not scales this table of approximate weights has been made.

	<i>ounces</i>
1 cup white bread flour (113 grams).....	=
1 cup barley flour (76 grams).....	= 3
1 cup buckwheat flour (133 grams).....	= 5
1 cup corn flour (109 grams).....	= 4
1 cup cornmeal fine (114 grams).....	= 4
1 cup cornmeal coarse (130 grams).....	= 5
1 cup rolled oats (75 grams).....	= 3
1 cup fine granulated oats (136 grams).....	= 5

This shows that cornflour and fine cornmeal may be used practically measure for measure in place of flour; that of buckwheat, coarse cornmeal and finelyground oatmeal ⁵ cup is equal to a cup of flour; and that it takes $1\frac{1}{3}$ cups of barley flour or rolled oats to equal a cup of white flour.

In using cooked cereals as flour substitutes allowances must be made for the water that they have taken up in cooking. This will differ according to the method of cooking. Generally not more than a quarter of the flour can be substituted by cooked cereals and a light muffin be made.

DOING MY LEVEL BEST

CLARENCE DU BOSE

United States Department of Agriculture

The farm is twenty miles from town—just an ordinary everyday sort of place. You might not select it as the setting for one of the inspiring incidents of the war. The woman is a modest, unassuming sort of person, too, and doubtless she would be immeasurably astonished if it were suggested that much importance be attached to the war rôle she is playing. But, suppose we decide that for ourselves. Suppose—since everyone is asking these days, “What can I do to help win the war?”—that we take a trip to the little twenty-mile-from-town farm and find out what one woman has done and is doing.

She is one of these kind-faced, gentle, motherly persons, and the advancing years have whitened her hair and diminished her vigor, but not her determination. Before the war she lived in ease and comfort in a large city, very far from this western state. For, although her girlhood and young womanhood had been spent on a farm, where she had been born, her circumstances had afterwards changed entirely. The farm became a dream of the long ago. And the years passed, and apparently they held for her only a peaceful approach of old age amid a well-ordered existence of undisturbed serenity.

Then came the war. It changed her as it changed everything. It touched her life as it touched every life. She wondered what she could do. She heard the Government's call for increased food production as a war necessity, and she heard of the shortage of farm labor. She appraised her own abilities. She knew that the things she could do best were the things it is necessary for a woman to do on a farm. She remembered the bygone years when she had been reckoned without an equal in her county as a farm home manager. Without the stimulus of the war, she would have quailed at undertaking again such strenuous and exacting duties. But under the inspiration of the new order of things her course seemed so clear, so obviously the only thing to do, that she debated the matter not at all. She simply bought a railroad ticket and telegraphed John and Mary that she was coming.

John and Mary, her daughter and son-in-law, lived on the little twenty-mile-from-town farm. They had written that some of the farm help had been lost because of the war, and that they were sore pressed to secure labor and maintain the maximum production of the place—

the production that must be maintained and increased if we win this war. She was thinking of that necessity—this kindly, gray-haired woman—when John met her at the lonely little station, and as they drove out to the twenty-mile-from-town farm, the farm where she has been since that day, and where she is now, working in the kitchen, preparing meals for the hands, relieving Mary of many household duties, increasing the farm's efficiency in many ways.

And this is how the United States Department of Agriculture happened to learn of the matter. One day she read in the *News Letter*, which is sent out weekly by the department, something that pleased her especially. So she wrote a letter to the Secretary, expressing her appreciation of that article, and of all the *News Letters* in general. This was very gratifying, but it was not the thing that gave the Secretary the greatest satisfaction. For her letter was made notable by its last lines, lines of sheer simplicity, added rather as an afterthought, it seemed—an incidental and unstudied expression that sums up in a sentence the war program that each of us must adopt, if we haven't already.

"I am going to be here as long as I am so much needed," she wrote. "It is fine to cook for hungry men, and I feel that perhaps I may be able in a small way, to help solve the labor problem. At any rate, I know what farm life is and I also know that an industrious farmer deserves the best. . . . We are going to wash clothes today, and this evening there is a pig to be cut up, lard to be rendered, and sausage to be made. . . . I am doing my level best to try to help everybody."

That was the letter that came from the little farm, twenty miles from town, written to the Secretary of Agriculture by a woman of elderly years who had left her comfortable, unburdened city home and sought the severities of a service where she "might be able in a small way to help solve the farm-labor problem."

"I am doing my level best," she said.

Are you doing as much?

We must ask ourselves that question—and answer it. The Nation is just you, and you, and you—all of us. And unless each person does his and her level best the Government can't solve the farm-labor problem, or any other war problem—or win the war.

EDITORIAL

The New Ration—21,000,000 bushels of wheat a month instead of 42,000,000 bushels. This country is slowly progressing toward the idea of the ration, as, one after another, certain foods become less available. We have become used to three pounds of sugar a month, now we are asked to limit ourselves to 6 pounds of wheat products.

50-50 buying and "victory" bread have failed to accomplish all that was hoped, partly because many have conformed only to the letter, not to the spirit of the law. Now we are asked to observe this new rule as a minimum. The Food Administration reminds us that many thousand families throughout the land are now using no wheat products whatever, except a very small amount for cooking purposes, and are doing so in perfect health and satisfaction. There is no reason why all of the American people who are able to cook in their own households cannot subsist perfectly well with the use of less wheat products than one and a half pounds a week, and the well-to-do households in the country are specially asked to follow this additional program in order that the necessary marginal supplies may be provided for those parts of the community less able to adapt themselves to so large a proportion of substitutes.

It seems inconceivable that, with a knowledge of the seriousness of the situation, any should still ask "why do we send wheat abroad instead of the less precious cereals." France and other allied countries for a long time have been using war bread with as small a percentage of wheat as it is possible to use,—bread that bears little resemblance in palatability to our "victory" bread.

Even if this were not true, why should we keep our best and send our worst, after all that France has done, and the little that we have been able to contribute? It is no longer the time to say "we can do this or that without hardship." It is time to preach sacrifice, and to make sacrifice willingly, thankful that we may be allowed to deny ourselves.

The need of this new ruling is emphasized by the speech of M. Tardieu, French High Commissioner to the United States, who said before

the Southern Commercial Congress meeting in Baltimore: "I am aware of what you have done in order to reduce your domestic consumption and to increase your exports. But you must do more. You must do it, for it is a case of necessity. You must do it because it needs to be done. Ask all American citizens who stand unanimously for the National ideal determined by the President, whether they do not deem that the time has come for new restrictions in consumption, in order to win the war. Restrictions, however strict they may be, are necessary in order that over there on the front where your troops are beginning to fight, where the whole of the great American Army will be in time, the situation on which final victory depends may be unaltered.

"We and our European allies, the British and the Italians, have been taught to suffer. Americans are now sharing our burden of blood and of death on the battle line, and we are requesting you in the rear to share as well our burden of suffering. In order that you and we may win the war, it is necessary that you here in America should all agree to a new effort and to new privations."

Buying 50-50. There still seems to be some misunderstanding in regard to the purpose of the 50-50 order. The 50-50 rule was not made in order to sell other cereals, but to save wheat. It means "buy less wheat flour," not "buy as much as before and take the substitute besides." Complaints that one is paying twice too much for flour because the cost of the other cereals is counted in, are quite out of place. Neither are these substitutes to be hoarded or destroyed. It is surprising how many intelligent people have failed to grasp the real situation and see how serious the shortage of wheat has become, and how necessary it is to conserve it in every way.

Everyone who understands the situation should do her best to make it clear to any neighbors or friends who are without this knowledge.

COMMENT AND DISCUSSION

THE PSYCHOLOGY OF "DO" AND "DON'T"

At a meeting of home economics leaders the proposal was once made that a faulty family dietary for a day should be set down and then analyzed and amended for the education of the house-wife. This suggestion met a chorus of protest, because "the psychology of 'Don't' is altogether bad." It seems that "Do" alone rouses to action.

This attitude, general as it doubtless is, leads to serious reflection on the part of those who were brought up under a sterner educational system than now prevails; to them such a view is suggestive of the popularity of the "glad" stories, and of the denial that wrong exists in the world. Is it no longer true that "facing the facts" is the only straight-forward way? and do not courageous people now as in the past build on their mistakes more surely than on their successes?

An excellent illustration of the older point of view is found in the report of Mrs. Johnson in the January number of the JOURNAL on the failure of the marketing clubs of Pittsburgh, an article that might well be read by every woman who has pondered on the distribution of food to the housekeeper, and schemed to eliminate that hated person the "middleman." Here are set down all the causes for the rise, decline, and fall of thirty-five marketing clubs, the rise and glowing future reported, we hear, in every case, to a woman's club whose membership too easily believed that a new way of doing business had been discovered; the decline watched in silence by a few faithful, indomitable workers; the fall, in all probability, not reported to the clubs that had acclaimed the rise, and were perhaps by that time following some new star of promise. The presentation of such a report would be considered "depressing" and we should doubtless hear that the psychology of it is all wrong. Have we not heard of the colored preacher of "befor de wah" time who declined to allude in his sermon to the wickedness of chicken stealing because "it would t'row a coldness on de meetin'?"

The history of the marketing clubs is a familiar story to those who have seen many stars rise and set. We must be forgiven for asking in some discouragement whether we are ever to get ahead on any program that calls for intelligent adjustment of the various functions of the home to the business and social life that goes on around us. Are we not to build stone upon stone a solid structure made of published records of the progress and results of such experiments? Not until we take

them more seriously, not until we develop a sense of loyalty to social advancement which is quite above our personal sensitiveness as to what we call success or failure. "I have been connected with so many failures" said a woman of noble qualities as a social worker. Face all such with this truth: there is no *failure* in any honest attempt, if only full records be kept on which other efforts of the kind can be built.

Such a report as Mrs. Johnson has given is a very valuable addition to our meager stock of social statistics, one that should be soberly studied by all women who propose to amend long established customs. Interest, enthusiasm, devotion to a good cause, are precious above measure; to prevent their waste on schemes that have been proved impossible, if we only knew it, and to prevent the discouragement that follows *needless* failure is a very important part of a social program. Projects that fail as well as those that succeed should be followed up and reported with absolute fidelity, and the causes of failure should be duly analyzed in order that others may not waste their efforts in a barren field. This is the method of the scientist. He may have spent a year on an experiment that brings him only "negative results," but he publishes these results if they can guide or help other workers.

It means careful study of the ground before an enterprise is launched, with reading of all records of previous attempts, keeping record of each step and publishing report of results, *whatever those results may be*. Suppose this method had been followed regarding, for instance, experiments in coöperative housekeeping, we should not see every fifteen or twenty years a fresh trial of it by an enthusiastic band of women who have not the advantage of the lessons learned in a dozen former ventures. For, let it be noted, these costly experiments are always a goodly number of years apart, so that those who promoted them have passed off the active stage, and there are no *records*!

What of the food boycott? Was the principle involved either proved or discredited? No one seems to know. Will some one of long memory in these fields of social experiment bring out the whole list of the last half century "with historical and critical notes" to use the library expression? From every one of these so-called failures some kernel of valuable experience is to be extracted.

MARY H. ABEL.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

The Food Problem. By VERNON KELLOGG AND ALONZO E. TAYLOR. (Introduction by Herbert Hoover.) New York: The Macmillan Company, 1917, pp. 213. \$1.25. By mail of the Journal, \$1.35.

Though not a large volume, this is really two books in one; Part I deals with "The Problem and the Solution" and Part II with "The Technology of Food Use."

The authors, both well known scientific men, have had unusual opportunities to become familiar with the food problem from their years abroad during the war and their connection with the Food Administration.

Aside from its bearing upon war conditions, no book published recently has presented the different phases of the food question in so tangible a form as this, or in a way so well adapted to use by all sorts of people.

For example—It is invaluable for the speaker on Food Conservation.

It might be used as a text-book, to unify other courses, even for advanced students in home economics.

The chapters on the food situation, in this and other countries, should be read—and studied—by dealers and distributors of food.

"The Physiology of Nutrition," chapter V, gives just the condensed information that every intelligent person needs, without the dry-as-dust details, which are often thought essential, but which repel rather than attract to further study.

Doubtless there are many statements which like railroad time-tables are "subject to change without notice."

The conclusion, "Patriotism and Food" (see p. 123) wholly, or by single paragraphs and sentences, deserves to be used in general

propaganda—perhaps even printed on the wrapping paper used in groceries and markets.

ANNA BARROWS.

Food Demonstration Work for Congested City Neighborhoods. Charity Organization Society, 105 East 22nd Street, New York City.

Last spring the Advisory Committee on Home Economics of the New York Charity Organization Society, conducted an experimental series of food demonstrations in various parts of New York City. Detailed records were kept of the attendance, the recipes prepared, the special diet recommendations made, the points which seemed to arouse the greatest interest in the audience, suggestive comments made by the women, and criticisms by social workers who assisted in arranging for the demonstration.

This material has been presented in pamphlet form and is available in limited supply for distribution among home economics workers or others interested in popular instruction through demonstration.

The Baby's Food. By ISAAC ABT, M.D., Philadelphia: W. B. Saunders & Co. 1917, pp. 143. \$1.25.

"The Baby's Food" consists largely of a collection of recipes for preparing foods which may be used for young children or invalids. While it is of considerable interest, because it contains recipes for preparing baby foods, especially those less familiar preparations, such as Finkelstein's Eiweiss Milk, Kellar's Malt Soup, and pegnin milk, which are not easily available to the mother or practicing physician, the book is on the whole unfortunately named.

The title suggests not only methods of preparing food for the baby (from birth to one and one-half years), but conditions in which various foods may be used. In this it is disappointing. At least 50 per cent of the pages are devoted to recipes for dishes other than those usually considered suitable for babies. There are included also suggestive diet lists for children of different ages and conditions, as well as directions for various types of baths and packs.

The Home Nurse's Handbook of Practical Nursing. By CHARLOTTE A. AIKENS. Philadelphia: W. B. Saunders Company, revised ed., 1917, pp. 303. \$1.50.

This book has recently appeared in a revised and enlarged edition. Valuable material has been added, including notes on the care of premature infants, of aged, chronic, and tuberculous patients, and of persons suffering from mental disorders.

This book, as the preface states, is designed for "the home girl or woman who seriously desires to do her best for the health of her own family, and as a working textbook for the 'practical' nurse or trained attendant." It contains much useful information, admirable in its practical good sense, and giving clear evidence of coming from well-interpreted personal experience. To any nurse, trained as well as untrained, such information can hardly fail to be profitable.

It is a pity that the book, with all its merits, should be marred by poor organization of subject matter, and very seriously marred by lack of scientific accuracy. It seems incredible that the author should be ignorant of modern theories of disease transmission; yet ignorance of facts now well established seems the only adequate explanation of statements such as "The germs of disease of various kinds are always found in the air" (page 16), and "they [the disease germs] flourish wherever dirt is allowed to collect, . . . and are readily carried about in the air by means of floating dust" (page 16). Transmission of pathogenic germs by nose and mouth spray, now considered one of the most important routes of

infection, is entirely omitted from the list of common ways by which diseases are spread, although two routes included in the list, dust and soiled boots, are of minor importance in disease transmission, if not entirely negligible. The distinction made between disease germs and "good" germs, is puerile. Some acquaintance with modern theories of immunity would result in a modification of statements on page 15. It is surprising also that detailed directions for formaldehyde fumigation are included, considering that the practice has now been abandoned as ineffectual by most progressive Boards of Health. Examples of erroneous and misleading statements might be multiplied.

The "home nurse" or "practical nurse" is an unstandardized person. Some "practical" nurses have had a sound though limited training, and can safely perform the simpler technical nursing procedures, but it is clear that Miss Aikens has constantly in mind those with little or no technical training. In the hands of such women this book may prove a real danger, since it includes directions for treatments that no untrained woman can perform without endangering her patient. An example is catheterization, a treatment that if improperly performed may cause acute and prolonged suffering. Yet full directions for catheterization are given, and they are not sufficiently safeguarded by the statement that "few home nurses will have to use the catheter until asked to do so and shown how by a doctor or fully trained nurse." Moreover, the home nurse without restriction is directed to catheterize maternity patients if catheterization is needed.

Miss Aikens' book, in spite of its conspicuous faults, contains much that is useful, sensible, and practical; it is clearly written, and the illustrations are among the best in any textbook on nursing. But it presents an element of real danger, and at best it does not fill our need for an adequate textbook on home care of the sick.

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BOOKS RECEIVED

- Bugle Calls of Liberty. Our National Reader of Patriotism.* By Gertrude Van Duyn Southworth and Paul Mayo Paine. Syracuse, N. Y.: Iroquois Publishing Co., Inc., 1917, pp. 179. \$0.60. Discount to schools purchasing six or more copies.
- Constructive Sewing. Books III and IV.* By Mary E. Fuller. Indianapolis: Industrial Book and Equipment Co., 1917, pp. 90. \$0.60.
- Cooking and Sewing Outline.* By Fay Morgan Rudd and Francesca E. Kayser. Birmingham: Tennessee Coal, Iron & Railroad Company, 1917, pp. 115.
- The Cost of Food, a Study in Diets.* By Ellen H. Richards. Third ed., revised under the direction of John F. Norton. New York: John Wiley & Sons, Inc., 1917, pp. 137. \$1.00.
- The Food of Working Women in Boston.* Lucile Eaves, Ph.D. Boston: Women's Educational and Industrial Union, 1917, pp. 213. \$1.00.
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NEWS FROM THE FIELD

News from the Food Administration.

In November the Food Conservation Division of the Food Administration was reorganized and the title changed to Home Conservation Division. Miss Sarah Field Splint, the editor of *Today's Housewife*, who had acted as Dr. Wilbur's assistant from the early organization of the work in Food Conservation, was made director of the division.

Since Home Conservation is a part of Home Economics instead of Home Economics a part of Conservation, the Home Economics section as such was disbanded, and Miss Lord, who was acting as chief, returned to her work at Pratt. Of the other members of the section, Miss Bevier, Miss Miller and Miss Bernhardt (who is looking after correspondence) became part of the Home Conservation Division, and Mrs. Norton and Miss Orr were transferred to the Public Information Department.

Miss Elizabeth Sprague of the University of Kansas came to the Food Administration the first of January to take the place of Miss Isabel Bevier, whose two months of leave of absence had expired. Miss Sprague is to remain for an indefinite time. Among many other duties she has done much of the planning for the College Courses in Food Conservation, has aided in formulating the "voluntary ration," and is establishing an experimental laboratory kitchen in connection with the Department of Agriculture, where the use of the various "substitutes" may be tried out and the recipes standardized. Miss Harriet Edgeworth and Miss Ethel Loflin are acting as her laboratory assistants,

Miss Jenny H. Snow, Supervisor of Household Arts of the Chicago Public Schools, was called to the Food Administration for a week in January, for consulta-

tion. Miss Katharine Blunt of the University of Chicago is in Washington helping in the preparation of the Conservation Courses for Colleges, and Miss Frances Swain of Chicago Normal College, is assisting in the same work for a short time. Miss Elizabeth Miller returned to Chicago at the end of December.

Miss Sarah Arnold of Simmons College is on leave of absence, and is to be with the Food Administration in Washington indefinitely. She is at present speaking for the Administration.

On March 1 Miss Martha Van Rensselaer of Cornell University, who has maintained a close connection with the Food Administration from its beginning, assumed the position of Director of the Food Conservation Division, to take the place of Miss Splint, whose duties have called her back to New York.

A War Program. The war has laid sudden and unexpected demands upon the organizations that are engaged in work for mothers and little children. Some are hampered by lack of funds, practically all by the scarcity of doctors and nurses. The increased responsibilities are being faced with the courage that comes of the conviction that no more patriotic service can be rendered just now than through the maintenance of the integrity of the home and the conservation of the health of the children of today—the citizens of tomorrow.

The program of the Eighth Annual Meeting of the American Association of Study and Prevention of Infant Mortality, held at Richmond, Va., October 15-17, 1917, under the presidency of Dr. W. C. Woodward of Washington was arranged with special reference to these needs. The meeting was a practical, get-together conference

of workers in the field of infant and maternal welfare. Representatives were present from 24 States, the District of Columbia and Canada.

The interest created by the courses on maternal, infant, and child care given by the Home Economics Departments of many of the state colleges and universities, and the corresponding demand for standard courses in such care, which would measure up to the highest ideals of specialists and research workers, was brought out in the session on Public School Education, presided over by Mrs. Norton, the Editor of the Journal, in the absence of Mrs. Henrietta W. Calvin, Chairman of the Section. The summaries of papers by Miss Alice Ravenhill on the "Education of College and University Women for Giving Instruction in the Care of the Health of Infants, Children, and Mothers," and by Miss Mary H. Mayer, on "Extension Courses in Public Schools for Adult Women in the Care and Feeding of Children" were followed by discussions by Mrs. Max West of the Children's Bureau, Washington, and others. On the recommendation of the Section, a committee, with Mrs. Max West as Chairman, has been appointed by the Association, to formulate courses in prenatal, maternal, infant, and child care, for the use of home economics teachers, colleges, universities, normal schools, graded schools, clubs, and classes.

Backing up the Boy in Khaki. The American Red Cross, under an agreement reached with the Y. M. C. A., has completed plans for a standardized recreation hut to be established at base hospitals and several American training camps in France. Under the agreement, the Red Cross is to furnish the building and all the equipment and the Y. M. C. A. is to combine its recreational facilities with the Red Cross in operating the hut. Both organizations are to be represented by a staff at each hut.

The buildings are one story weather-proof structures and contain a social hall

and a billiard and pool room. The social hall is used as a lounging, reading, general recreation room, and for entertainments of various sorts. It seats 600 people comfortably. Chess, checkers, and other indoor games add to its attractions. A piano and victrola with American records are also parts of the equipment.

The billiard room contains one billiard and one pool table with a complete assortment of cues and necessary accessories. Proper lighting facilities are a part of the equipment, thus assuring "all the comforts of home" to the followers of this sport.

The main entrance to the building opens on a reception hall, with adjoining offices for the Red Cross and Y. M. C. A. attendants. Here information of all kinds may be obtained and the details of the management worked out.

At the other end of the building is the canteen, operated by the Y. M. C. A. Tobacco, sweets, and various other articles will be sold here. To the rear of the canteen is a dining room, kitchen, and sleeping rooms for the use of nurses as a club. They are supplied with comfortable furniture, writing tables, piano, magazines and other reading material.

The Y. M. C. A. is arranging a series of lectures, musical and other entertainments, which will bring some of the best talent in America to these huts. Besides furnishing all the equipment the Red Cross has also supplied cinema and weekly series of films to be shown in the social hall certain nights a week, and has also installed a circulating library of selected books.

The Red Cross also takes care of the recreational wants of those patients in the hospital who are unable to visit the recreational hut. It distributes free to the patients tobacco, cigarettes, reading and writing material, and has installed phonographs in the wards.

Through the joint operation of these huts by the Red Cross and the Y. M. C. A., America's convalescent soldiers and training camp students will be able to enjoy the benefits and facilities of both organizations.

THE
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For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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GRACE AT TABLE

1918

*Here we gather, dear All-Father,
Round Thy table to be fed.
'Tis Thy gift, - our daily bread.*

*As we gather to be fed
Nations plead for daily bread, -
Fighting son and anguished mother,
Orphaned children, - all together
Pray to Thee for daily bread.
At Thy common table, Father,
Ask we all for daily bread.*

*God, All-Father, hear our prayer!
Move our hearts and minds to share
With Thy children at Thy table
This Thy gift of daily bread, -
Sacred gift of daily bread!*

*Lest they perish, swift and eager
Share we now our daily bread.
Give through us, O great All-Father,
To Thy children, daily bread!*

SARAH LOUISE ARNOLD.

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No. 4

A STUDY OF THE COST OF LIVING OF WORKING CLASS
FAMILIES IN ROXBURY, MASS.

SARA HENRY STITES

Department of Economics, Simmons College, Boston

Approximately three quarters of the families of the United States belong to the so called "working" or "wage earning" class. Certainly in view of their numbers, the maintenance of a decent standard of living by this class of families is a matter of the greatest importance to the welfare of the country. Especially at this time, when the United States is engaged in the most formidable war of history, it is the part of wisdom to see to it that all members of the community are kept in the highest possible state of efficiency. This year, more than ever before, it is true that underfed, poorly clothed, inadequately sheltered, and mentally harrassed men and women, are, economically speaking "undesirable citizens." What are now the living conditions of ordinary working class families in the United States? How much money do they spend in the effort to satisfy their wants? Is the money used in the wisest possible manner? Is the amount expended sufficient, in the present state of prices, to supply actual necessities? These are the questions which must be answered at once if the nation is to be prepared for a conflict that will call forth all the powers of a strong and healthy citizenry.

It was with the object of obtaining information that might, in some small degree, aid those who wish to know the facts with regard to standards of living among working class families in Boston, that the investigation, the methods and results of which are outlined in the following pages, was undertaken. As the group that did the field work was small

and the time short, the scope of the inquiry was necessarily confined to one section of the city—the district known as Roxbury. However, since this part of Boston contains a not inconsiderable portion of the total population of the city—about 17 per cent of it, in fact—and since the district is settled largely by English speaking people of the working class, the facts gathered may perhaps be valuable in arriving at a conclusion regarding the ability of working class families to maintain an “American” standard of living in Boston as a whole.

In February 1917, through the kindness of various social agencies in Roxbury,¹ the four Simmons students² who made the investigation were introduced to families in that district who said that they were willing to supply the information desired. From these, sixteen were selected for study. The period during which they were under observation varied from three weeks in one case to ten weeks in several others, but most of the families were visited for a term of six to eight weeks. Each housewife kept a careful record of all her expenditures, jotting down the items, with memoranda of the amounts bought and prices paid. These accounts were kept in an ordinary blank book, and no effort was made to classify the objects of expenditure. Regular weekly or semi-weekly calls were made by the students having charge of the investigation, and at these times the housewives’ records were examined, and possible errors and omissions rectified. The data thus obtained were finally transferred to the students’ own classified lists showing the weekly expenditures of each family for the various items of the budget. In this way, during the two months of observation, the investigators were able to obtain information upon which they could base fairly definite conclusions as to the standard of living of each family and the cost of such a standard with regard to food and housing. The data also threw some light upon the question of operating expenses, and the amount available for “sundries,” i.e., for doctors’ and dentists’ bills, for insurance, for books and papers, for recreation, and other similarly important purposes. With regard to costs and standards of

¹ Norfolk House Centre, the Associated Charities-Roxbury branch, the Social Service Department of the Children’s Hospital, and the Cecelian Guild. In particular the investigators acknowledge with gratitude the coöperation and assistance of Miss Emma Taft Knight and Mrs. Roy Cushman of the Norfolk House Centre, and of Miss M. Isabelle Tessier of the Social Service Department of the Children’s Hospital.

² Miss Ruth Corwin, Miss Katherine Hagerty, Miss Dorothea Rice, Miss Margaret Stevens.

clothing, the facts are not sufficiently definite or detailed to warrant more than the barest generalization.

Research by the United States Bureau of Labor and by others³ interested in the question of the cost of living in this country led to the conclusion that in the early years of this century a normal family consisting of father, mother, and three to five children, and living in an urban community must have an income of at least \$750.00 in order to maintain without incurring debt a fair standard of living. The average family spent this income in about the following proportions:

FOOD	RENT	CLOTHING	FUEL AND LIGHT	SUNDRIES
<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
41	17	14	5	23

In the hands of the average housewife, 41 per cent of a \$750.00 income would, fifteen years ago, suffice to provide food for the "normal" family. The sum—about \$5.90 per week—would procure the minimum of wholesome food necessary for the efficient and healthful development of each member of the family. Similarly, the amounts spent for housing and the other items of the budget might possibly procure for the family the indispensable minimum in each respect. In other words, \$750.00 was ten or fifteen years ago, a large enough sum to provide a family of father, mother, and three to five young children with the necessities for the maintenance of a fair standard of living, provided that the money was wisely expended.

What were the possibilities in the spring of 1917? What sum should the family spend if it is to be adequately fed? What sum does it actually spend for food? Is the typical working class family undernourished to a degree dangerous to the welfare of the community? Does the high cost of food result in a lowering of the standards with regard to other necessities—housing, clothing, etc? As a very small beginning of a com-

³ "The Cost of Living and Retail Prices of Food." Eighteenth Annual Report of the United States Commissioner of Labor, 1903.

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plete answer to these questions if asked in regard to Boston, the facts concerning a few families in Roxbury seem to be worthy of examination.

Professor Alice F. Blood, Director of the School of Household Economics at Simmons College, has reached the conclusion⁴ that in the early part of the winter of 1916-1917 a family consisting of two adults and four young children—altogether amounting to four units by the Atwater Scale⁵—could barely satisfy their dietary needs by expending the sum of \$8.00 per week. The weekly cost of food per unit would therefore amount to \$2.00, which equals about 28½ cents per day.

Thus making no allowance for the rise in prices of other items, and considering merely the necessity of spending more for a minimum ration, we are justified in saying that the smallest income upon which a normal family could maintain a proper standard of living in a city like Boston was \$850.00 per year—i.e., reckoning fifty working weeks per year—\$17.00 per week; and if the amount spent for food was to be a proper proportion of the total expenditures, the family income in the latter part of 1916 should have been at least \$1000.00.

During the winter of 1916-1917 food prices continued to rise. By the end of April, 1917, the rations recommended by Professor Blood would have cost the family considerably more than \$8.00 per week. In Roxbury the families whose budgets were collected would have had to pay \$10.93 per week⁶ in order to secure all the food materials included in Professor Blood's list. In other words, the cost of the weekly minimum ration had increased by more than one-third. By the end of

⁴ Unpublished monograph. December, 1916.

⁵ The Atwater table of units is as follows:

	<i>Units</i>
Man, 17 years and over.....	1.0
Woman, 16 years and over.....	0.8
Boy, 16 years.....	0.9
Boy, 12-15 years.....	0.8
Boy, 10-11 years.....	0.6
Girl, 14-15 years.....	0.7
Girl, 10-13 years.....	0.6
Child, 6-9 years.....	0.5
Child, 2-5 years.....	0.4
Child, under 2 years.....	0.3

(Bulletin No. 46, U. S. Dept. of Agriculture.)

⁶ Average of prices actually paid by families under investigation verified by visits to Roxbury stores. At present—February, 1918—the articles included in Professor Blood's list could not be bought in Roxbury for a total sum of less than \$11.18, slightly more than the sum necessary last spring.

April, 1917, therefore, the simplest diet that would furnish adequate nourishment cost nearly \$2.75 per unit per week. A family of father, mother, and four small children should have spent for food at that date a sum that would amount to more than \$568.00 per year. In order to have proper food and also to meet the other expenses of a normal existence, the family would have had to spend at least \$1100.00 per year. The weekly income, therefore, should have been about \$22.00. It is hardly necessary to state that the majority of working class families have not such an amount of money at their command. For that very reason it is important to ascertain in as many cases as possible what their total expenditures really are, what proportion goes for food, to what extent the amount paid for food varies from the amount which should be expended if the family is to be properly fed.

Examination of the Roxbury budgets reveals the fact that at least eleven of the sixteen families were underfed. The amounts spent on food by these eleven households varied from a sum 40 per cent short of an amount that would have purchased a living ration, to an amount only 2 per cent short of that desirable minimum. Two families of this group spent less than two-thirds of the amount that should have been at their command for food purchases, and four families had only about three-quarters of the sum they needed. The average sum spent by these eleven families was about 20 per cent less than it should have been. In not very vivid contrast to this state of affairs the budgets of four other families show a slight excess of expenditure for food, an excess averaging about 6 per cent more than the sum necessary to buy an adequate supply. One family out of the group of sixteen spent approximately the correct amount.

The cause of the conditions summarized in the preceding paragraph was not that the families in question were extremely large, nor that their purchasing power was less than is usual in their class. Omitting from the calculation five families whose total incomes and expenditures were uncertain because of the presence of adults who contributed to the general fund only part of their wages, we find that the average family numbered 4.7 units, as measured by the Atwater scale. This is a group not very much larger than that which is usually regarded as normal. An income of over \$1000 a year was implied by the sum total that it cost this average family to live—a sum amounting to about \$20 a week. Obviously these families were in a position to spend as much as families of their class usually have at their disposal. They actually did spend

an average of \$11.33 per week for food in March and April of last year, and although this was \$1.50 less than the sum necessary to buy sufficient nourishment, it absorbed 56 per cent of their total resources. We are forced to the conclusion that if a living income is one of which not more than 40-45 per cent must be spent on food, then in these times even \$1000 a year is not adequate to maintain an ordinary working class family in Boston.

Obviously, if an unduly large percentage of the total outlay of a family goes for food, a smaller proportion than is desirable remains for the purchase of the other necessities and comforts of life. Taking the Roxbury group as a whole⁷ we found that of the average total outlay (about \$20.16 per week) \$2.50, or 12.4 per cent was paid out in rent—a smaller proportion of total expenditures than is considered desirable. It was only the eight smallest families, the average size of which was about that of the smallest family usually considered as “normal,” that could afford adequate housing. These paid an average rent of \$2.53 per week—i.e., about 16 per cent of their living costs—not far from the normal proportion.⁸ For this sum, approximately \$11.00 per month, they secured four rooms—an adequate amount of space, if we take the minimum to be one room to every one and one-half persons. These families evidently were not obliged to meet their high food costs by economizing to any serious extent in the matter of shelter, since there were other lines along which retrenchments could more easily be made. It was the larger families having five or more children, families obliged to cut down their expenditures in every direction, who were not properly housed. In order to economize they either lived in crowded quarters, or moved to larger but more undesirable apartments in cheaper neighborhoods. As a matter of fact, the rents paid by all the sixteen families were surprisingly uniform in amount. With one or two exceptions they were all between \$2.00 and \$2.75 per week. Two of the largest families paid even less rent than the average.

Ventilation and light in the houses occupied by these families was usually adequate for the maintenance of the health of the inmates. Only two families had a dark room, situated between the kitchen and the living room of a five room apartment, and used as a bedroom. Eight families—half of the group—lived in “three decker” apartment houses, having light and air in front and back. Others lived in two-family or

⁷ Omitting five families mentioned on p. 151.

⁸ See p. 149.

double houses and had some yard space. Three lived in detached houses, each with a yard, and air and light on all sides.

Every family, with one exception, had a private toilet in its apartment or house; one used a toilet in the cellar, in common with two other households. In some instances the toilet was practically a closet, without outside light or air, and separated from one of the rooms—often the kitchen—only by a curtain. Only two families had their own bath rooms, all had running water in their apartments, but only one had hot water. The rest heated water on the stove. Three families had stationary tubs for washing clothes and all had space out of doors for drying clothes.

Space for storing was limited, of course. Nearly all the families lived in houses with cellars, but rarely used these cellars. Food was never stored there, for fear of dampness and of depredations by other inmates of the house. Most of the families had a pantry or closet opening into the kitchen, where food and kitchen utensils were kept.

To sum up—we may say that the small family in Roxbury does not pay for shelter an excessive proportion of its income. Larger families are likely to suffer deprivations in the matter of space in which to live. In most cases ventilation and sanitation are fairly good. On the other hand, a serious defect that is practically universal in its occurrence, and is important because of its effect in increasing living expenses, is lack of space for keeping household supplies.

For light and fuel the family budgets under consideration showed an average weekly expenditure of about \$1.27—approximately 6.6 per cent of the total outlay for all purposes. As a rule the kitchen stove was the only means of heating the dwelling, at any rate during the greater part of the year. Coal was generally used as fuel. Five families supplemented the services of the coal stove with those of a portable gas stove, and one family used a kerosene stove for light cooking. Only five or six families bought kindling; the rest collected it wherever they could find suitable material. One, for example, whose proportionate expenditure for coal was considerably below the average, effected this economy by the use of wood procured from an old barn falling to ruin not far away from their house. This wood was used, not only for kindling, but even instead of coal for the maintenance of the fire throughout the day. The average amount of coal used by the family of ordinary size would seem to be in the neighborhood of 150 pounds per week.

Three families bought the year's supply of coal early in the autumn, paying \$7.25 per ton and thereby keeping down costs, as later in the winter the price per ton rose considerably. Most of the families, however, bought by the hundred weight, paying 60 to 65 cents per hundred weight, or by the bag, paying 17 cents per bag of 25 pounds. A ton of coal bought by the bag cost \$13.60. Thus families buying their fuel in these small quantities paid more than \$6.00 per ton in excess of the price paid by the few families who had the funds and the storage facilities to buy in large quantities before the winter set in.

For lighting purposes six families, for the most part those having the hardest struggle to make ends meet, use kerosene only. Six use both kerosene and gas; three use gas only; and one uses gas supplemented by candles.

In conclusion, it may be said that, with the greatest economy possible for families situated as are those of this particular group, 6.5 per cent of the total expenditure must go for fuel and light, i.e., 1.5 per cent more than the average discovered to be "normal" for such families fifteen years ago.⁹ The cost of fuel and light has increased to such an extent that more money must be spent to secure a minimum amount of heat and illumination.

Facts in regard to costs and standards of clothing among the families interrogated were difficult to obtain. Some of them spent nothing for clothing during the weeks of the investigation. One family apparently spends nothing the year around, and is clothed entirely at the expense of a relative. In the circumstances, the investigators were forced to depend largely upon the general information given them by the women for the facts which enabled them to draw conclusions. Only a few families bought new clothing, and even these bought the more expensive articles—men's outfits, for example—on the installment plan. Thus one man, the nature of whose work required him to dress comparatively well, bought practically all his apparel at a wholesale store, and paid the store \$3.00 every two weeks throughout the year. In another family, most of whose clothing was bought new, the overworked mother made almost everything—even the hats worn by herself and the children. Nearly all of the families bought the greater part of their clothing at second hand, patronizing church rummage sales, the Morgan memorial, or regular second hand clothing shops. In every household garments

⁹ Cf. p. 149.

were mended and made over until they were entirely worn out. All these devices for saving were part of the everyday routine, evidently made obligatory by the high cost of food and other absolutely necessary commodities. Most of the women said, too, that whenever special economy was necessary they cut down still further their expenditures for clothing, lessening the outlay for food only when further retrenchment in the matter of clothing was impossible.

Under the heading "Sundries" the investigators kept a record of the expenditures of each of the sixteen families for household furnishings, education, health, insurance, dues and contributions, recreation, and other miscellaneous purposes.

For household furnishings small sums, averaging only a few cents a week, were spent, and the usual objects of the expenditure were cleaning materials and kitchen utensils.

Fourteen families each bought a daily paper, and occasionally spent a few cents on post cards or other stationery. Two families spent nothing at all for these objects during the weeks in which their accounts were examined. Only one family subscribed for a periodical, a religious magazine costing fifty cents a year.

Expenditures for health were very small, and it was a matter of interest to observe that no money was wasted on patent medicines. Three families spent nothing at all for the maintenance of their health during the weeks of the investigation. Most of the families, however, spent an average of a few cents a week for drugs and for treatment. Several sent their children to the Forsythe Dental Infirmary and paid small sums for the services rendered them there. One or two others availed themselves of the opportunities offered by hospital dispensaries for treatment of chronic troubles, as in the case of a child who had suffered from infantile paralysis.

Four of the families reported nothing given as dues or contributions. The others all made a weekly contribution to the church, the amount varying from 2 cents to 40 or 50, according to the size and to the means of the family. The usual amount was 20 or 30 cents. Only two of the families made regular payments to a labor union. Several of the women paid small dues to clubs connected with the social settlements.

The amount spent on recreation was pitifully small. Ten of the families spent nothing at all for this purpose during the weeks of our acquaintance with them. The other six groups went occasionally to the

moving picture theatres—two families, in fact, went every week. But most of the families relied for recreation upon free entertainments of various kinds, including those given at the settlements and churches.

A large proportion of the outlay for miscellaneous objects by the majority of the families consisted of carfare for those members who live some distance from the place of their daily work. A number of them were obliged to lay aside for this purpose at least 60 cents a week.

Such expenditures as those that have just been described leave very little money for other things of a more frivolous nature. Some of the men and the older children had 50 cents a week as "spending money" and rendered no account of the objects for which the money went. Now and then a woman indulged in candy or a "soda." Most of the miscellaneous objects, however, for which were spent the sums recorded in the last column of the family budgets were really necessities.

It must be admitted that there is little need for urging greater economy upon the majority of these people. Their purchases, inadequate as they often are to satisfy their needs, are made, for the most part, with a thoughtfulness that is almost pathetic. It is the eating of the cheaper cuts of meat, and the spotted vegetables sold by the dealer at special rates in order to be rid of them; it is the wearing of second-hand clothing, the crowding together in small dwellings, and the abstinence from amusements that enables some of these families to exist at all. A trained dietitian might in certain cases advise the purchase of fewer doughnuts or crackers and more vegetables, or do away with the small expenditures for cake or candy, but even she could not administer the sums that several of our families have to spend for food in such a way as to supply them with proper nourishment. There is, it must be admitted, waste in the expenditure of these small incomes, but the waste is the fault of society rather than of the individual. The purchase of food and fuel in small quantities, for instance, and, consequently, buying at greatly increased cost, is inevitable as long as the funds to be spent are so small as to prohibit large purchases at any one time or the occupancy of dwellings large enough to allow storage of supplies. Do what she can, then, the housewife cannot provide properly for even a small family—her husband, herself, and two or three young children—unless she has at least \$20.00 to spend each week. Considerably more—at least \$24.00—should be at the disposal of the ordinary workingman's family, which is apt to have four or five children, and often more.

THE HOME ECONOMICS TEACHER IN THE RURAL SCHOOL

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This is the day of the rural school, and the great progress made in these schools in the past few years has been remarkable. It is making itself felt in the higher institutions of learning in that their standards have been raised because of the more thorough preparation in the public school. It is also resulting in the general social and economic improvement of the rural community. Another agency has been a strong movement among rural educators to make of the school the social center of the community, and no one person could do more toward carrying out this aim than the right kind of a home economics teacher. It is this teacher and her work that will be discussed in this paper.

The teacher will be considered from two standpoints: first her personal requirements, or the characteristics of a successful rural home economics teacher, and second, her field of usefulness—the things that she can do to meet some of the problems both of the school and the community.

Her first requisite should be a thorough knowledge of her subject, both practical and theoretical. She should be just as able to cook a good wholesome meal with the minimum of time and labor, as she is to find out the number of grams of protein and the number of calories of heat to be gotten from it. She should be just as capable of making sausage and cooking "boiled dinner" as of making the three accepted types of salad dressing or an angel food cake—and just as well able and as interested to help a mother to make over a last winter's worsted dress for her daughter in school as to design and make an elaborate evening gown of georgette crepe and chiffon. She must know and be able to do anything in the way of modern home industries that any one in the community can do and much that they cannot do, without parading her knowledge or ability.

This rural home economics teacher must know something about rural community life and be able to adapt herself to it without feeling a sense of superiority or acting the part of the tender-foot. Otherwise she will separate herself from her students and her people. They will feel that she is not one of them—that she is different—has been brought up under other conditions and cannot appreciate them and their ideas of life. So her influence there would be crippled. She need not hope to bring

about reforms in the home or social life of the community by criticising their customs, but by having them discover for themselves the advantages of better methods of doing things.

She must never feel that she is too big for the place, that she is wasting her sweetness, her culture, on the rural village, for if that is her attitude she will soon find that for some reason she is not filling the place, that it is too big for her. For indeed it is a much harder place to fill than the same work in a town or city school. There is the difficulty of getting material to work with in a very limited market, the hardship of an inadequate equipment often, and, worse than either, there is sometimes a sentiment in a small place against teaching anything so far from the three "R's" as home economics. They refuse to accept "Right Living" as the fourth "R" as the home economics teacher is trying to present it. So she must be able to create a demand for what she has to offer, to prove that such training is valuable for the best development of the race. Perhaps it will take a whole school year to make home economics popular in a town; then surely the teacher would need to go back to the same school at least the second year when her work has only been begun in the first. Having the interest of the community at heart, she will want to see that her plans are carried out and her own work and policies completed. Often when I ask students entering the Home Economics department at L. I. I. what home economics work they have taken in the high school from which they graduated, they have occasion to mention something about the three teachers they have had in three or four years.

Another important characteristic of this model rural home economics teacher is the ability to do the best possible work with the equipment and material that may be had under the circumstances—not the material and equipment on hand, necessarily, for it may be that she could get better things and more sanitary laboratory conditions by exerting herself a little. In that case it would cease to be a virtue to just "get along" with what one has on hand when she could do better. On the other hand our young teacher is likely to feel that her rural school laboratories must be exactly on the plan of the ones at the school from which she graduated, and if she finds them entirely different she may take any one of several attitudes according to her disposition. She may feel discouraged and decide that with such equipment she could not be expected to do very much; so she will be content to do home economics on a very small scale. If she is very ambitious, but impractical, she will sit down and recall every

thing in her alma mater laboratories and make a list to hand to her superintendent which will call for more money perhaps than he has to spend for equipment for the whole school during the year. Naturally he sees that she and her wants are out of the question, and she will probably get nothing, but the cause of home economics will get a black eye with that superintendent.

But if our teacher has the qualities of "carefulness and inventiveness and watchfulness and willingness and readiness of appliance, along with the economy of her great grandmothers and the science of modern chemists, with English thoroughness and French art" to use Ruskin's oft quoted words, she will take stock of what is on hand and what may be made from obtainable materials. Then she will decide which things are most necessary and which she can dispense with without crippling the work and will proceed to set up an equipment that is the best for her particular conditions.

Another asset that the home economics teacher can use is correct dressing. Any teacher in a small place is more or less of an example as to dress, but the home economics teacher has an exceptional influence in this way, since she is supposed to have had extra training in the making of clothes. For this reason she has an especial opportunity to use her example and influence toward elegant simplicity and neatness in dress. Since extravagance in dress has become such an alarming form of intemperance among girls and women especially, some woman of standing in each community needs to use her influence in the cause of sensible dressing. On the other hand if the home economics teacher wears seven dollar waists, twenty dollar hats, twelve dollar shoes, and other things in proportion, the girls will think she is wonderful, but will get the idea that in order to be a "high brow," they must dress the part, and some of them will get the notion that respectability depends upon one's clothes and what one has—a rather common notion. I once heard a woman defending the social standing of a family which had recently moved to her town by saying that they are "just lovely people—why, every sheet in their house is hemstitched by hand"; as though having wasted all that time in which they might have been gaining real culture made them "lovely people." If the home economics teacher is having that kind of an influence in a community, she is falling short of what is expected of her.

Then there is so much that the home economics teacher can do for the community that other teachers could not do so well. She can do much toward developing school and community spirit and pride by

getting up a good exhibit for the parish and state fairs. If she has a creditable exhibit, the students will be proud of it; they will just have to be at the Fair to see how it compares with the others. Their parents too will be glad to see what *our* daughters and *our* school and *our* community can do at *our* State Fair. It is a wholesome spirit, a spirit that is sure to lead to progress.

If the teacher is thorough and practical, mothers will soon see that their daughters are receiving training that they themselves might profit by; and when this teacher suggests the organization of a Woman's Home Economics club to meet at the school building on Saturdays, some of them will be interested enough to join. This club would be made entirely worth while if they studied together such things as Home Management, A Well Selected Diet, Infant Care, Home Nursing, House Sanitation or any subject that would appeal to the homemaker. The social side of these meetings would make them popular if nothing else would, and so the teacher would have to see to that side of the organization.

One great thing that the teacher can do for her study club is to introduce to them the readily available source of reliable information in the United States government bulletins. She can remind them that there is hardly a phase of home life that is not discussed in one or more of these bulletins. They can be grouped together according to subjects to form texts for almost any of the home economics subjects that these mothers might take up:—for instance, for the child study course, there are four bulletins to be had for the asking: Prenatal Care, Infant Care, Food for Young Children, and School Lunches. For the food and cookery classes, there are not only bulletins on Milk, Eggs, Meat, Fish, Bread, Cereals, Vegetables, but the new series on How to Select Foods, and such bulletins as Fresh Fruits and Vegetables, Conservers of Staple Foods, and others that show how to adjust our living to the present emergency needs. There are at least forty bulletins from the Department of Agriculture on the subject of foods, to say nothing of many valuable ones from the Bureau of Chemistry, The Children's Bureau, and others.

Two bulletins that the rural home economics teacher would do well to use and demonstrate are those on the "Iceless Refrigerators" and "The Fireless Cooker." Both of these conveniences would be very acceptable in a rural community where household conveniences are not very common.

There is another important movement that some one needs to start in any public school—that is a consideration of the physical condition

of every student. Any public school teacher will tell you that the condition that causes her the most trouble and that stands most in the way of her success as a teacher, is the physical unfitness of a large per cent of her students; that many of them are stupid, lazy, mentally inert because they are physically unfit. Often these children are below normal physically (and consequently mentally) because of some poor home condition, perhaps a lack of intelligent care when they were babies or young children. There are several ways in which the home economics teacher can endeavor to remedy these conditions.

One thing that she can do toward this end is to improve the noon meal of the school children, either by supplementing it with a hot dish served in the school kitchen by the older girls in the cooking classes or by giving special instructions on the cooking and preparation of foods suitable for the school lunch to both her students and their mother's club. It is a very simple matter with the older girls' help to prepare a bowl of cream soup or some other simple dish to supplement the lunch from home, or to serve milk to the students. There is usually no trouble in getting material for these lunches by letting the students furnish by turns the things that they have most of at home.

This plan for the noon meal has more advantages than simply furnishing so much protein and so many calories; it gives the teacher a chance to teach table manners, to bring out the bashful student, and to establish various social virtues that might otherwise never come to light. Again, she can have an influence on the daily lives of her students as to hygiene and sanitation, which will affect their health materially.

After all, it may seem that a great deal is expected of her; that she is expected to give to the community too much of her time out of school, and too much to the school itself, but there are many just such teachers in the state who are doing just these things and are happy in doing them. It may require a great out-put of her young life and energy, but the possible results in a big cause will fully repay her best efforts.

HOUSEHOLD PHYSICS AND PRACTICE COTTAGE WORK

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During the past five years the writer has given a special course in physics for the students in the Department of Home Economics. An unusual effort has been made to adapt the course to the needs of this particular group and to make its practical value as great as possible. The results herewith presented represent one phase of the course.

Each year, efficiency tests of gas, gasolene, kerosene, and alcohol burners, and of electric cooking devices have been made by the young women in the course. The heating equipment needed for these experiments has been loaned to the laboratory in many instances by manufacturers or local dealers. The coal range tests have been made on a great variety of ranges, both in the laboratories of the Home Economics Department, and in the homes of resident students and sorority houses.

Table I gives typical results of efficiency tests of electric cooking appliances. Similar tables might have been given for the gasolene and kerosene burners and the coal range.

TABLE I
Efficiency tests of electric cooking appliances

ITEMS	SURFACE HEATERS		ENCLOSED HEATER	IMMERSION HEATER
	A	B		
Mass of water heated (grams).....	4,536	4,536	2,268	1,360
Room temperature (Centigrade).....	21	22	21	22
Initial water temperature (Centigrade).....	18.2	22.6	16.4	19.5
Final water temperature (Centigrade).....	93.2	96.5	65.0	92.0
Temperature increase (Centigrade).....	75.0	73.9	48.6	72.5
Heat absorbed (calories).....	340,200	335,210	110,225	98,600
Heater turned on.....	3:00	12:13	7:37	9:30
Heater turned off.....	3:32	12:58:30	8:33	9:46:49
Time in use (seconds).....	1,920	2,730	3,360	1,009
Current (amperes).....	10.32	8.69	1.63	4.00
Potential difference (volts).....	115	115	110	110
Electric energy expended in heater (joules).....	2,278,656	2,730,000	602,448	443,960
Heat equivalent of electric energy (calories)*.....	544,221	652,000	143,880	106,033
Efficiency (per cent).....	62.5	51.4	78.6	93.0

* 4.187 joules are equivalent to 1 calorie.

Nearly every kind of electric heating appliance was used, and under widely varying conditions. Room temperatures, existence of air currents from open windows, the material and the condition of the surface of the utensil used, wattage of the heater, relative size of the heater and the utensil, and quantity of water heated, were all found to affect the efficiencies very considerably, particularly those of the surface and immersion types. The average working efficiency of the electric range, as used in the home depends on so many factors, that to make an accurate estimate is difficult. In the hands of those who have had a bit of experience in making the proper combination of surface, enclosed, and immersion heaters, the efficiency should probably be above 60 per cent.

In determining the maximum of efficiency of the coal range, the entire top was covered with large vessels of water, e.g., wash boilers or 5 gallon gasolene cans, and the oven space was similarly utilized. The fire was not lighted until the initial water temperature had been taken, and when 2 pounds of kindling and 10 pounds of coal had been completely burned the record of the final maximum temperature was made. It was estimated that, as the coal range is used for cooking in the average home, not more than one-fourth of the available space is utilized at any one time, and that the cooking operations are being carried on less than one-half of the time during which the coal is burning. If this estimate is correct the *average cooking efficiency* of the coal range does not exceed 2 per cent. The efficiencies of flame contact appliances, which included standard kerosene and gasolene blue flame burners, alcohol lamp for chafing dishes, and gas burners have been found to vary from approximately 20 per cent to 35 per cent.

Table II gives the average efficiencies of various kinds of equipments.

For the purposes of comparison there is given in Table III the value

TABLE II
Average efficiencies of equipment

KIND OF COOKING EQUIPMENT	EFFICIENCY
	<i>per cent</i>
Coal range (entire space utilized).....	18
Coal range estimated home cooking (about).....	2
Flame contact burners (kerosene, etc.).....	28
Electric heaters—surface.....	45 to 65
Electric heaters—enclosed.....	70
Electric heaters—immersion.....	90

TABLE III
Value in calories in 5 cents worth of fuel

FUEL	CALORIES
Coal (Rock Springs) at \$10.00 per ton.....	32,256,000
Kerosene at 20 cents per gallon.....	8,550,000
Gasolene at 25 cents per gallon.....	6,130,000
Alcohol at 75 cents per gallon.....	1,340,000
Electricity at 3.85 cents per kilowatt hour.....	1,116,000

TABLE IV
Heat available in 5 cents worth of fuel

FUEL	CALORIES
Coal (range at 2 per cent efficiency).....	645,160
Kerosene (range at 28 per cent efficiency).....	2,394,000
Gasolene (range at 28 per cent efficiency).....	1,716,400
Electricity (range at 60 per cent efficiency).....	669,600
Alcohol at 28 per cent efficiency.....	375,200

in calories of 5 cents worth of each of the various fuels at the prices prevailing in Pullman, Washington, in December, 1916.

Table IV gives the heat available for cooking in 5 cents worth of each of the fuels, proper allowance having been made for the working efficiencies of the various cooking appliances.

For the purpose of affording laboratory work in the course in household administration, the Department of Home Economics maintains a practice cottage. The seniors in home economics each year are divided into groups of four, and each group, together with a chaperon, spends four weeks at the cottage, each student having the management for one week. Each one makes out a week's menus and determines the necessary quantity of each article of food according to the needs of the group. The young women are "weighed in" at the beginning and "weighed out" at the end of the month and in most cases are found to have fared better than on their regular boarding house or home cooking.

During the past year, through the generosity of the Washington Water Power Company it has been possible to have the practice cottage equipped with a Westinghouse electric range in addition to the coal range, and Prof. Agnes Craig, Head of the Department of Home Economics, made it possible for us to obtain comparative cooking cost data for a family of five. During the winter months when the furnace was in use the water front of the coal range was disconnected, the hot

water for domestic use being furnished entirely by the coil in the furnace.

In the late spring the water front was again connected up and all hot water needed was heated by the range in connection with the cooking.

Table V gives a week's menus and Table VI gives the cost of cooking

TABLE V
*A typical week's menus cooked on electric range**

DAY	BREAKFAST	LUNCH	DINNER
Monday.....	Cream of wheat, corn muffins, syrup, coffee	Creamed potatoes, bread and butter, apple sauce	Pork roast, potatoes, tomatoes, apple sauce, bread and butter
Tuesday.....	Baked apple, muffins, coffee	Rice and cream, bread and butter, salad	Spaghetti and cheese, fried potatoes, buttered carrots, cottage pudding, bread and butter
Wednesday.....	Graham mush, rolls, coffee	Cheese sandwich, apple sauce, cake, chocolate	Veal loaf, baked potatoes, creamed onions, gravy, rolls, jelly cake, coffee
Thursday.....	Marmalade, rolls, coffee	Escalloped potatoes, tea, baked apple, bread and butter	Creamed salmon on toast, mashed potatoes, bread and butter, apple pie
Friday.....	Muffins, cereal, syrup, coffee	Salad, pudding, bread and butter	Pork chops, potatoes, tomatoes, bread and butter, custard
Saturday.....	Hot cakes, syrup, cereal, coffee	Potatoes, apples, onion salad, rice and cream, bread and butter	Roast pork, baked potatoes, creamed onion gravy, bread and butter, cream, cake, coffee
Sunday.....	Fried mush, toast	Bread and butter, fruit cake	Veal roast, gravy, baked potatoes, creamed onions, bread and butter, cream, cake, coffee

* It must be remembered that the menus given were planned and used last year before the present food problem of the war arose. The menus are not considered ideal, but represent, perhaps, pretty closely the meals of an average American family.

TABLE VI
Cost of cooking week's menus on electric range

DAY	KILOWATT HOURS					
	Breakfast		Lunch		Dinner	
	Oven	Plate	Oven	Plate	Oven	Plate
Monday.....	0.5	0.1	0.7	0.2	1.0	0.0
Tuesday.....	0.7	0.5	0.5	0.0	0.6	0.4
Wednesday.....	0.5	0.1	0.5	0.0	2.4	0.7
Thursday.....	0.6	0.0	1.0	0.0	1.4	0.0
Friday.....	0.6	0.2	0.6	0.0	0.3	0.8
Saturday.....	0.0	1.0	0.5	0.2	2.0	0.6
Sunday*.....	0.0	0.3	1.1	0.4	0.0	0.0
Total kilowatt hours.....	5.1		5.7		10.2	
Total cost (cents).....	19.6		21.9		39.3	
Cost per meal.....	2.8		3.13		5.65	
Total cost for week (cents).....						80.0
Average cost per meal (cents).....						3.85

* On Sunday dinner was served at noon, and supper at night. The figures for dinner are placed under lunch.

TABLE VII
Cost of cooking week's menus on coal range, water front disconnected

DAY	POUNDS					
	Breakfast		Lunch		Dinner	
	Wood	Coal	Wood	Coal	Wood	Coal
Monday.....	3.00	8.00	2.00	6.00	3.50	6.00
Tuesday.....	3.00	5.00	2.25	6.00	3.00	6.50
Wednesday.....	4.00	4.00	3.00	4.50	3.25	6.25
Thursday.....	3.00	6.50	4.00	7.00	5.00	9.00
Friday.....	3.00	2.75	2.00	2.75	2.50	6.00
Saturday.....	2.00	1.75	6.00	2.00	5.75	5.00
Sunday.....	3.75	5.25	1.50	5.00	1.50	8.00
Total pounds.....	21.75	33.25	20.75	33.25	24.50	46.75
Costs (cents)*.....	6.5	16.6	6.2	16.6	7.35	23.4
Total.....	23.1		22.8		30.8	
Cost per meal.....	3.3		3.25		4.4	

Total cost for week (cents).....76.70
 Average cost per meal (cents)..... 3.65

* Value of 1 pound of wood, 0.3 cents; pound of coal, 0.5 cents.

them on the electric range. Two meters were provided, one for the oven and boiler and one for the plates. The meters were read before and after each meal, and in every case tenths of kilowatt-hours were carefully estimated. During December, 1916, when this week's cooking was done, the average cost of a kilowatt-hour for cooking purposes in Pullman was 3.85 cents; this value was used in calculating all cooking costs.

The cost of a typical week's cooking on the coal range with the water front disconnected is detailed in Table VII. Table VIII gives the cost of a week's cooking with the water front connected up.

TABLE VIII

Cost of cooking week's menus on coal range, water front connected

DAY	POUNDS					
	Breakfast		Lunch		Dinner	
	Wood	Coal	Wood	Coal	Wood	Coal
Monday.....	5.50	4.50	6.50	9.50	3.75	9.75
Tuesday.....	3.75	6.50	9.25	7.00	6.00	7.50
Wednesday.....	6.00	9.00	5.50	4.25	5.50	3.25
Thursday.....	4.00	2.00	9.00	9.75	9.00	9.75
Friday.....	4.50	9.75	4.50	5.00	5.50	13.50
Saturday.....	6.75	5.50	6.00	11.50	3.75	11.25
Sunday.....	9.25	15.25	5.00	0.00	3.00	18.00
Total pounds.....	39.75	52.50	45.75	47.00	35.50	73.00
Cost in cents.....	11.9	26.25	13.7	23.5	10.95	36.5
Total (cents).....	38.15		37.2		47.45	
Cost per meal.....	5.45		5.3		6.78	
Total cost for week.....						\$ 1.23
Average cost per meal.....						.0585

In all, three weeks' cooking was done on the coal range with the water front disconnected, four weeks' with the water front connected, and five weeks' cooking on the electric range. Table IX summarizes the average costs per week and per meal of this work.

In considering the above results the fact that the work was carried on by students who were busy with other regular college work must not be lost sight of, and it should be mentioned also that each of the 19 young women who lived in the practice cottage had had considerable experience cooking on the coal range and that none of them had had experience with the electric range. Each student, however, whether cooking on

TABLE IX

Summary

EQUIPMENT	AVERAGE COST	
	Per week	Per meal
	<i>cents</i>	<i>cents</i>
Coal range water front connected.....	119.6	5.70
Coal range water front disconnected.....	77.4	3.67
Electric range.....	78.5	3.72

Using wood, with Washington fire wood at \$11.00 per cord the cost per week would be 88.2 cents; per meal, 4.2 cents.

the coal range with or without the water front connected, or on the electric range, was instructed to practice economy of "fuel" as much as possible.

HOW MUCH FOOD DOES IT TAKE TO SUPPLY US WITH THE CALCIUM WE NEED?

MINNA C. DENTON

The following table illustrates the paucity of calcium in most common foods, with the exception of milk. The amount of calcium oxide contained in these designated food portions, 0.4 gram, is little more than half the amount required daily by an average adult, and only about one-third of the amount needed by the prospective or nursing mother. In most cases, the foods listed here, are chosen because they are richest, not poorest, in calcium. Most meats, fish, and many cereal foods, fruits, and vegetables, would need to be given in enormous amounts to furnish even this modest portion of calcium.

If large amounts of greens such as chicory, endive, lettuce, watercress, can be eaten, these are valuable sources of calcium. This means, however, that they must be eaten cooked (steamed, or cooked in very little water). Amounts used in salads (10 to 25 grams) are too small to be significant. Oatmeal is higher in calcium than are other cereals, yet 15 to 20 servings (as breakfast porridge) are required, to yield 0.4 g. of calcium oxide.

With regard to vegetables and other foods boiled in water which is thrown away, it must be remembered that this ordinarily leads to a loss of about one-fourth of the calcium which they contain.

It will be noted, even from the few analyses available, that vegetable foods are especially liable to vary in their mineral content. Doubtless character of the soil and amount of rainfall have a good deal to do with these variations, apart from the amounts of each mineral constituent more or less characteristic of different species of plants.

It will also be noted that method of manufacture has a good deal to do with the ash content of foods which have undergone household or factory manipulation. (See cottage cheese; differences in water content doubtless play an important rôle here. See molasses; not only the original calcium content of the plant is here concerned, but also, evidently, the calcium added in clarifying the raw cane juice from which sugar is extracted, would have a considerable influence.)

Amounts of food material yielding 0.4 gram of CaO

After analyses given in Sherman's "Chemistry of Food and Nutrition," pp. 332-337; except when otherwise specified. (All weights refer to edible portions only.)

FOOD MATERIAL	COMMON MEASURE	WEIGHT IN GRAMS	WEIGHT IN OUNCES	NUMBER OF SERVINGS	RESULTS OF OTHER ANALYSES
Milk, whole.....	$\frac{1}{2}$ pint	238	8.4	1 large	Higher†
Buttermilk.....	About $\frac{1}{2}$ pint	267	9.4	1 large	
Cream, rich (31 per cent fat).....	$\frac{1}{2}$ pint	278	9.8		
Cheese, hard (American)*...		36	1.3	1 large	Lower*
Cheese, hard (Swiss)*.....		25	0.9	1 large	
Cheese, cottage.....		133	4.7		Less than half as much*
Eggs, whole, 50 grams each...	8½ eggs	430	15.2	8½	
Egg yolks, 18 grams each...	11 yolks	200	7.0		
<i>Fruits</i>					
Currants, fresh.....		800	28.2	10	
Currants, dried.....	2 cups	290	10.1	5 (sauce)	
Dates, dry.....	45 dates	400	14.1	5 (sauce)	
Figs, dried.....	5 figs	134	4.7		
Oranges, $\frac{1}{2}$ pound each.....	3 oranges	667	23.5	6 (of $\frac{1}{2}$ orange)	
Prunes, 50 to the pound...	74 prunes	667	23.5	15	
Raisins.....	4 cups	500	17.6	12 (sauce)	
Rhubarb.....		667	23.5	5	

* Adequacy and Economy of Some City Dietaries, Sherman and Gillett.

Forbes' analyses (Bul. 255, Ohio Agr. Exp. Sta.) are somewhat lower than Sherman's.

† Bul. 28, Office of Exp. Sta., U. S. Dept. Agr., p. 55, footnote.

Amounts of food material—Continued

FOOD MATERIAL	COMMON MEASURE	WEIGHT IN GRAMS	WEIGHT IN OUNCES	NUMBER OF SERVINGS	RESULTS OF OTHER ANALYSES
<i>Vegetables</i>					
Cabbage.....		585	20.6	5 or 6	
Carrots.....		520	18.4	5 or 6	
Cauliflower.....		235	8.3	2 or 3	
Celery.....		400	14.0	4 or 5	
Leeks.....		500	17.6	5 or 6	
Lettuce.....		800	28.3	28	
Onions.....		667	23.5	6 or 7	
Parsnips.....		444	15.7	4 or 5	
Potatoes.....		2,500	5.5 lbs.	20	
Radishes.....		800	28.3 oz.	28	
Rutabaga.....		400	14.0	3 or 4	
Spinach.....		444	15.7	3 or 4	
Tomatoes.....	13 large	2,000	{ 4.0 lbs. 6.5 oz.		
Turnip greens.....		84	3.0	1	
Turnips.....		450	15.9	4 or 5	
<i>Legumes</i>					
Beans, navy, dried.....	Nearly 1 cup	182	6.4 ¹	4 or 5	
Beans, lima, dried.....	2 cups	400	14.0 ²	8 to 12	Somewhat less*
Beans, string, fresh.....		533	18.7 ³	6	
Peanuts.....		400	14.0		
Peas, dried.....		286	10.1 ⁴	5 to 8	About one-half as much*
<i>Nuts</i>					
Almonds.....		133	4.7	5	Same result*
Chestnuts, fresh.....		1,000	2 lbs. 3.25 oz.		
Pecans*.....		331	11.7 oz.	12	
Walnuts.....		370	13.0		
<i>Sugars and sirups</i>					
Maple sap.....		235	8.3		
Maple sirup*.....	9 tablesp.	256	9.0		
Corn sirup*.....	20 tablesp.	555	19.5		
Molasses (not designated)...	2 tablesp.	44	1.5		
Molasses (New Orleans)*...	3 tablesp.	77	2.7		
Molasses (Porto Rico)*.....	2 tablesp.	55	2.0		
Sugar, brown (molasses)*...	40 tablesp.	374	13.2		

* Calculated from analyses given in Adequacy and Economy of Some City Dietsaries, Sherman and Gillett.

¹ After cooking, 12.8 to 16 oz. ² 28 to 35 oz. ³ 18 oz. ⁴ 20 to 25 oz.

CONSERVING WOMAN POWER IN WAR TIME

MARY ALDEN HOPKINS

Every woman must have shelter, nourishing food, and satisfying recreation if she is to be of her full worth to the world. This is as true in time of war as in peace. No woman can carry her part of the burden successfully if she is frightened, sickly, or overworked. Men do not always understand this. Sometimes women have to protect each other.

The War Work Council of the National Board of the Young Women's Christian Association was formed for just this purpose. It was called into existence in June, 1917, to guard the interests of American women affected by the war. To aid and advise them, a \$4,000,000 war budget was appropriated. An even larger sum of money was raised before Christmas. Hostess houses in military camps and cantonments, erected at the requests of the commandants, received \$900,000. The sum of \$500,000 was put aside for emergency housing of the employed girl in camps and in industrial centers. American women who cannot speak English received for translators and advisors \$100,000. The Bureau of Social Morality speakers was continued and increased with a like amount. Work in colored communities affected by the war received a donation of \$200,000. For women in France and Russia, so burdened by the great war, \$1,000,000 was set apart. The increased staff, emergency calls, and miscellaneous expenditures took the rest of the \$4,000,000.

The women who form and carry on the War Work Council are those whose names guarantee its sincerity and effectiveness. The Council members are chosen from all over the country.

Hostess houses in the cantonments where thousands of soldiers are gathered from every state were the first phase of the War Work Council's activities. They are designed for the comfort of the wives, mothers, and sweethearts who come to the great camps to see their soldiers. No house is erected except at the direct request of the commandant. Fifty-three are finished and in use; others are being built; still more have been asked for. These houses have been designed by women. Miss Julia Morgan is in charge of construction on the Pacific coast, Miss Fay Kellogg in the southern field, and Miss Katharine Budd in the middle west.

Each hostess house contains a large reception room where hospitality is symbolized by a cheerful fire in a huge stone fireplace. A quiet rest room gives the woman who has traveled some distance a chance to recuperate while her soldier is being summoned by telephone. A nursery

under the charge of a trained nurse is a haven of refuge for tired babies. A cafeteria provides food, not only for the visitors, but for the boys who are tired of a soldier's fare. In those great cantonments miles long and stretching over thousands of acres, the hostess house is the only spot where a woman has a right to set her feet.

Girls always have been the special charge of the Young Women's Christian Association in time of peace. In the period of mobilization and preparation for war, the War Work Council gives them increased attention. Both the girls in industry and girls at home are confused by the abnormal conditions. Girls' club work is being furthered by the War Work Council in all towns and cities adjacent to military camps for the purpose of stabilizing the girls' emotional response to the unusual conditions which surround her. Forty-six social centers for girls in these neighborhoods were opened before the war had been six months in progress. Sixty-five specially chosen workers were placed in charge to guide the girls' recreations in safe paths.

The Patriotic League deals with girls in larger groups, and is proving a safe-guard to the dangers incident to the change in our usual social restraints. The organization expresses its purpose in its pledge. "By doing better than ever before whatever work I have to do; by rendering whatever special service I can to my community and country; by living up to the highest standards of character and honor and helping others to do the same."

All of the protections which are thrown about the white girl in this emergency time are doubly necessary in the case of the colored girl, and everything is being done for her that is being done for the white girl. The matter of her safety is placed in the hands of trained and efficient leaders of her own race.

The lectures on social morality that have always been a feature of the Young Women's Christian Association's influence have been extended and the number of lecturers increased to fourteen.

Women who are the most helpless of all when their husbands are called into the army are perhaps those women from foreign countries who never have learned to speak English. When the husbands or sons upon whom they have depended are called into service, they have lost their English tongues. The Foreign Language Service Bureau has been established with branches in industrial centers and in camps where foreign men are gathered to assist these women in arranging their family affairs. Translators explain in twelve languages about soldiers' insurance, separation

allowances, exemption papers, postal regulations, food conservation, and the many other matters which the usual citizen learns without effort.

Calls from France and Russia for help in feeding the over-burdened women who manufacture the munitions of war came to the War Work Council very early last year, and twenty-one industrial experts, under the supervision of Henrietta Roelofs, were sent to aid French women in establishing in the great industrial centers, foyer-canteens for factory women. These are rest and recreation rooms combined with cafeterias. Attention is also being given to the needs of our own American nurses, hundreds of whom are already in France. The letters sent back by the American women in France portray the desperate situation of French women in the fourth year of the war. The million dollars which the War Work Council devotes to helping European women is all too small.

The two War Work Council secretaries first sent to make a general survey of conditions in Russia wrote back of long lines of women waiting for hours to receive their portions of the scanty food supply. Some quicker form of distribution of food among the women working all day long in factories was a crying need. The cafeteria system seems to be the best method for the situation. "Tea reading rooms," the Russian women call such restaurants. Six industrial experts were soon dispatched from America to assist the two women already in Russia. Whether or not we are sympathetic with the political situation in Russia, we must not fail the Russian women who ask for our assistance.

Although the activities of the War Work Council directly concern women they are of equal importance to men. Seeming progress made at the expense of women is really no progress at all. The conservation of women's strength and the preservation of the social stability we have attained through centuries of clumsy effort is of vital importance. A nation's success depends upon the welfare of all its people.

THE PROFESSIONAL SERVICES OF HELEN KINNE

Miss Helen Kinne, Professor of Household Arts Education in Teachers College, Columbia University, died in New York, December 29, 1917. Miss Kinne was a pioneer worker and a recognized national leader in the development of home economics. Her teaching began in 1891, and during her years of work she has trained about 3000 teachers of home economics, who are now rendering service in all parts of the world. Born in Norwich, Connecticut, in 1861, and living afterward in Providence, Rhode Island, where she attended private schools and took advanced instruction under members of the faculty of Brown University, her attention was caught in 1890 by a magazine article that described the newly-established New York College for Training Teachers which was offering courses in "domestic economy." She entered this institution in January, 1891, and six months later was asked to become the instructor in domestic economy, which as a new subject was then under the direction of the Department of Physics and Chemistry.

In 1898, when Teachers College, by affiliation with Columbia, became the first university school of education, Miss Kinne was made Professor of Domestic Science and Art in charge of her separate department. The subject grew rapidly and after a time separate departments of Domestic Science and Domestic Art became necessary and Miss Kinne became head of the former and Mrs. Woolman of the latter. As the student body increased specialized teaching was developed, Miss Kinne finally taking as her personal responsibility the courses in methods of teaching, while retaining active supervision of the laboratory courses in food-chemistry and cookery. She also herself gave the course in household management and domestic economy. Separate departments of Household Administration, and of Nursing and Health, under Miss Nutting, had begun to develop when the gift of a \$450,000 building made possible the organization of the School of Household Arts, in 1909, in which Miss Kinne became senior professor in the department of Household Arts Education, while departments of Household Chemistry, Physiological Chemistry, Nutrition, Foods and Cookery, Textiles and Clothing, each with extensive laboratories, and its own teaching staff, were developed on the foundation which she, herself, had laid.

The twenty-fifth anniversary of Miss Kinne's first connection with Teachers College was celebrated in January, 1916. The next year she went on her Sabbatical leave and at the end of it she was not in health

to return to her work. In November she came back to New York expecting to resume her duties in January, but an acute attack of colitis, from which she had long suffered, came on at Christmas and proved fatal five days later.

When the history of home economics is written Miss Kinne will be counted among the half-dozen national leaders who in the early development of this work won a place for it in the school curriculum, and by training competent teachers made that place secure. Her own department at Teachers College increased from a mere handful of students to over a thousand each year in regular and special courses. In the country at large the subject found a place in most of the woman's colleges except those of strictly academic character, in a large number of universities, and in nearly every public normal school and public school system. To this result Miss Kinne also contributed by leadership outside her institution. From the first Lake Placid Conference on Home Economics, in 1899, as chairman year after year of one of its committees on courses of study, she led a group who studied the educational aspects of the subject. After 1905, Miss Kinne was chairman of the "Teaching Section of the Lake Placid Conference on Home Economics" which held a winter educational meeting for the next few years, and which was one important step toward the organization of the American Home Economics Association in 1908. Miss Kinne's committee reports on such topics as Grade School Work, Vocational Schools, Secondary Schools, and Requirements for Teachers, appearing almost every year, were significant contributions toward the development of our subject.

The Home Economics Association of Greater New York was organized under Miss Kinne's leadership in the fall of 1908, and she served as president for three years. The programs dealing with health problems, standards of living, infant welfare, and other social as well as educational matters, reflected the widening views of those years.

In the American Home Economics Association Miss Kinne took a leading part, serving on the Council and as one of the incorporators of the Association, and on the editorial board of the *JOURNAL*. She was also chairman of its important committee on Legislation for a number of years, and was active in the earlier campaigns for what were eventually the Smith-Lever and the Smith-Hughes acts, which are doing so much to enlarge our professional fields at present.

Miss Kinne also worked professionally in other associations, contributing papers particularly in the Eastern Manual Training Association.

Another contribution to home economics was made in her books. Her "Equipment for Teaching Domestic Science," helped to improve and standardize the material means of instruction; her text-books, written with Miss Cooley as co-author, "Shelter and Clothing" (1913), and "Foods and Household Management" (1915), and the Home Making Series "Food and Health," "Clothing and Health" and the "Home and the Family" (1916-1917), have made her name well known to thousands of school girls now studying home economics. Her projected "Methods of Teaching Home Economics" was never written, but the thousands of teachers who received their training under her are living testimony of her skill and her ideals in this field.

Miss Kinne regarded home economics as a national and international agency for social progress. Because of the latter, she had planned to spend her Sabbatical year in helping to introduce home economics into missionary schools in China; she was to have lectured at the Canton Christian College, and an invitation had come for her to plan the home economics department of a new Missionary College in Japan.

She was returning to the College full of plans for her courses and for her participation again in the life of the College. She was planning to bring special lecturers on immigration and other problems to the College, and was keenly following the war situation as related to home economics, and was expecting to go to Washington and to Boston in quest of materials during the Christmas holidays when the fatal illness came on.

FOR THE HOMEMAKER

A LESSON IN ECONOMICAL BUYING

GRETA GRAY

Everyone knows that different foods vary in the amount of nourishment they give to the body, and that the value of a pound of food is by no means measured by its cost. Yet it is not always easy for housekeepers to judge which of two foods gives more energy to the body for the money expended. These tables are intended to help the housewife, the teacher, and the student find this out with little effort.

The calorie is a measure for energy (power to do work) just as the inch is a measure of length, or the pound is a measure of weight. To make a garment we need more yards of cloth 18 inches wide than we do of cloth 36 or 54 inches wide. To get enough energy to keep the heart pumping, to walk about, and to work, we need more pounds of a food which yields 200 calories per pound, than we do of a food which yields 1600 calories per pound. We buy cloth by the yard and food by the pound. We can calculate whether cloth which is a yard wide is cheaper or dearer at 30 cents a yard, than cloth 18 inches wide at 10 cents a yard, and how much of each we require. So we can calculate which of two foods is the cheaper for the energy it gives; but we find it more difficult to figure out which is the cheaper food, than which is the cheaper cloth. This table is meant to make it even easier to tell which of two foods is really the cheaper, so far as energy is concerned, than it is to calculate which of the two pieces of cloth is the cheaper.

It must always be remembered, though, that energy is only one factor, and that we might buy a great many calories of food very cheaply and still be very poorly fed. Milk, for instance, yields only 314 calories a pound, while sugar gives 1815. Yet milk is an indispensable food, while we could get along without sugar.

To make a perfectly fair comparison, we should know just what each food does in the body. If we do not forget this, we can get a great deal of help in buying foods to good advantage, by finding out how much energy we get for our money.

must have $\frac{1}{2}$ pound to yield 1600 calories to those of which we must have from 15 to 25 pounds, as shown.

We may put our foods into less well defined or larger groups, as the number of pounds necessary to yield 1600 calories increases, because a pound more or less means only a few calories more or less; because the amount of waste, in some foods, varies so much according to their condition and the way they are prepared; and because these bulky foods even when used in large quantities, furnish such a small part of the energy of our diet.

It will be noticed that this classification makes it easy to remember to which group most of our common foods belong and it is hoped it may serve to fix in mind the relative fuel values of these foods.

From this grouping we see that we need forty or fifty times as much of some foods as we do of others to give us the same amount of energy. The table (following) enables us to determine which of two foods gives more energy for less money.

To use the table to compare one food with another as to approximate cost of the energy furnished, find in the left hand column the group to which the first food belongs, and then look along the horizontal line until the column headed by the cost per pound of this food is found, on this line and in this column is the cost of this food for 1600 calories (the unit of energy for which this table is made). In the same way find the cost of 1600 calories of the second food. This gives us the figures for the comparison of the two.

For example: To determine by the table whether or not celery at 10 cents a pound is really cheaper as to energy supply than shelled nuts at 80 cents or a dollar a pound. Finding group 9 (to which celery belongs) in the left hand column and running along to the column headed 10 cents a pound, we see that 1600 calories of celery costs 2 dollars. In the same way we find from the table that 1600 calories of shelled nuts at 1 dollar a pound costs 50 cents. To get the same amount of energy from one as from the other we would have to have 2 dollars worth of celery, and 50 cents worth of nuts; so that celery at 10 cents a pound is four times as expensive as shelled nuts at 1 dollar a pound. Another consultation of the table shows us that rolled oats at 7 cents a pound furnishes as much energy as eggs at 30 cents a pound. (About 40 cents a dozen, or nine eggs to a pound).

This does not mean that we should always eat nuts instead of celery, or never have any of the more expensive foods. For several reasons we

need some vegetable or fruit at each meal; and we need a variety of food every day; and every one, children most of all, must have milk. It would be poor economy to do without these foods. It is hoped, however, that this table will aid the housewife to choose wisely and economically in selecting the food for her family, for a large part of the days food supply may be selected from the cheapest foods.

TABLE II
Comparative Cost of 1600 Calories of Different Foods at Varying Prices

COST PER POUND.....	\$0.01	\$0.02	\$0.03	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10
Group 1. Cost for 1600 calories.....	\$.005	\$0.01	\$0.015	\$0.02	\$0.025	\$0.03	\$0.035	\$0.04	\$0.045	\$0.05
Group 2. Cost for 1600 calories.....	.0075	.015	.0225	.03	0.375	.045	.0525	.06	.0675	.075
Group 3. Cost for 1600 calories.....	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10
Group 4. Cost for 1600 calories.....	.015	.03	.045	.06	.075	.09	.105	.12	.135	.15
Group 5. Cost for 1600 calories.....	.025	.05	.075	.10	.125	.15	.175	.20	.225	.25
Group 6. Cost for 1600 calories.....	.04	.08	.12	.16	.20	.24	.28	.32	.36	.40
Group 7. Cost for 1600 calories.....	.075	.15	.225	.30	.375	.45	.525	.60	.675	.75
Group 8. Cost for 1600 calories.....	.125	.25	.375	.50	.625	.75	.875	1.00	1.125	1.25
Group 9. Cost for 1600 calories.....	.20	.40	.60	.80	1.00	1.20	1.40	1.60	1.80	2.00

TABLE II (Continued)

COST PER POUND.....	\$0.20	\$0.30	\$0.40	\$0.50	\$0.60	\$0.70	\$0.80	\$0.90	\$1.00
Group 1. Cost for 1600 calories...	\$0.10	\$0.15	\$0.20	\$0.25	\$0.30	\$0.35	\$0.40	\$0.45	\$0.50
Group 2. Cost for 1600 calories...	.15	.225	.30	.375	.45	.525	.60	.675	.75
Group 3. Cost for 1600 calories...	.20	.30	.40	.50	.60	.70	.80	.90	1.00
Group 4. Cost for 1600 calories...	.30	.45	.60	.75	.90	1.05	1.20	1.35	1.50
Group 5. Cost for 1600 calories...	.50	.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
Group 6. Cost for 1600 calories...	.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00
Group 7. Cost for 1600 calories...	1.50	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50
Group 8. Cost for 1600 calories...	2.50	3.75	5.00	6.25	7.50	8.75	10.00	11.25	12.50
Group 9. Cost for 1600 calories...	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00

To find the cost of 1600 calories of a food at 15 cents a pound add the cost of 1600 calories of that food at 10 cents a pound and the cost at 5 cents a pound. Do the same for any cost per pound that is not given above.

HOUSEHOLD THRIFT

C. F. STODDARD

Washington, D. C.

This is a story of thrift in the handling of a part of the family income—that portion which is given to the wife to meet the expenses of the table. Out of the \$30 which my wife receives at the beginning of each month she feeds two people and manages to save an average of \$8. The expenditure for food has been as high as \$30 per month; it has been as low as \$18; the average is \$22. I shall not attempt to tell in detail how this money is spent, but merely suggest a few ways in which the resources are conserved. What she is doing almost any one can do who cares to make the effort. It means some inconvenience—watching for bargains in food, walking a little further for the sake of getting an article cheaper and then carrying it home one's self, buying without a telephone, canning one's own fruit and making jelly on hot summer days, and in other ways finding and stopping the household leaks.

There is in this city a chain of grocery stores which sell at a reduction of from $\frac{1}{2}$ cent to 3 or 4 cents the same provisions that may be purchased in other stores. They do not deliver. A large portion of our food is bought at one of these stores, and from a comparative record which I have kept I find that the average saving has been 80 cents per month. On some articles, including meats, there is no reduction and these are therefore purchased at the regular prices at a market not far from our home. Here a saving of 5 per cent is effected on all purchases by preserving the cash register receipts—not a large item, but sufficient to stop a leak which is usually disregarded.

It is more economical for us to can fruit and make jelly than to purchase them. For instance, even with sugar at $7\frac{1}{2}$ cents per pound (it was bought for $7\frac{1}{2}$ cents at one of the chain stores when it was 8 cents at all other stores), and including the cost of the jars and glasses, which of course should not be included every year, the fruit has averaged 15 cents a pint and the jelly $6\frac{1}{2}$ cents a glass. Not including the containers, the average has been approximately 11 cents and $4\frac{3}{4}$ cents, respectively. You can hardly get the very cheapest canned fruit and jellies at these prices. Even including the labor the cost is much less than that of a commercial product that would compare in quality.

It is impracticable to estimate the saving effected by the use of a

small oven which fits over the gas burner instead of using the large gas oven; by covering the ice with a chemically prepared cloth, which costs 13 cents, thus reducing the ice bill; by purchasing round steak at 28 cents, grinding it and making a meat loaf which lasts 3 or 4 meals, instead of buying sirloin at 30 cents or veal chops at 35 cents, as many do, and having only enough for one or at most two meals.

But the best part of this thrift program is the disposition of the \$8, more or less, which has been saved out of the \$30. One half of this amount is regularly deposited in a building and loan association which pays 6 per cent interest, and during the five years of our married life the balance has grown to more than \$200. A portion of the other half was used to purchase a 5 per cent industrial bond (this was before the days of the Liberty Bond), while the balance is now drawing 4 per cent interest in a savings bank for use in an emergency such as sickness.

In this connection I might add that I have a dime bank into which I drop 10 cents every day I walk to and from the office ($3\frac{1}{2}$ miles each way), this amount being called our "Christmas fund" for the purchase of gifts. Last year this scheme yielded us \$20. Also, at the end of each week every penny I find in my pockets goes into a tin box. In this way I accumulated about \$3 last year, which was deposited in the savings account when I had saved an even dollar. Another way in which I have accumulated a small sum is by putting aside each year a number of pennies equal to my age. My father started this when I was born and I have continued it ever since I have been earning money, and expect to continue till death. At present the amount is approximately \$7 and draws 6 per cent interest.

"A NASTY THING CALLED FAMINE"

"The food wanted by mankind does not exist. The word *shortage* is not strong enough for the situation. To put the matter bluntly, the whole world is up against a nasty thing, familiar to the people of India, called *famine*."

LORD RHONDDA,
British Food Controller.

THE WHEAT FLOUR ALLOWANCE

The Food Administration has ruled that the use of wheat must be limited to $1\frac{1}{2}$ pounds a week for each person in order that the absolutely necessary amounts be sent abroad, and that in the individual household it makes no difference whether the wheatless days or meals be observed provided the total amount of wheat is not exceeded. Many housekeepers, in order to know how best to regulate their use of wheat products, want to know exactly how much they are serving.

The following statements give different ways of distributing the allowance as well as the amount of wheat that goes into the ordinary servings. From these one may determine how to use the wheat to best meet one's especial needs.

It should be remembered too that a great many people should use less wheat than is allowed, and a large number should go without it altogether. Five hundred of the most influential hotels in the country have agreed to serve no wheat till the next harvest. One county in Texas has promised to use no wheat. Every householder who can join in this "no wheat" movement is contributing just so much toward winning the war. Indeed it is difficult to understand how any one who knows how serious the situation really is can possibly do anything else than give up wheat entirely.

Group 1. For those using the full allowance in the form of $1\frac{3}{4}$ pounds of Victory bread, and $\frac{1}{2}$ pound of flour in other forms.

Bread allowance. $1\frac{3}{4}$ pounds Victory Bread = 1 pound of wheat flour. This amount is equal to $\frac{1}{4}$ pound or four 1-ounce slices per day.

	ounces
<i>Breakfast cereals.</i> One ready-to-serve, or one to-be-cooked, 2 servings per week . . .	2
<i>Other wheat products.</i> Macaroni or spaghetti, 1 serving per week	1
Crackers, (2 saltines), 1 serving per week	$\frac{1}{4}$
<i>Soups.</i> Thickened cream soups, 2 servings per week	$\frac{1}{2}$
<i>Sauces and gravies.</i> Used once each day	1
<i>Muffins.</i> (50-50), or griddle cakes (2 as a serving = $\frac{1}{2}$ ounce) 2 servings per week . .	1
<i>Biscuits.</i> (50-50) (2 as a serving = $\frac{1}{2}$ ounce) 2 servings per week	1
<i>Cake.</i> (50-50) 3 servings per week	$\frac{3}{4}$
<i>Pie.</i> (one crust 50-50) 2 servings per week	$\frac{1}{2}$
Total	8

Group 2. For those using total allowance in form of Victory Bread.
 $2\frac{3}{4}$ pounds Victory Bread = two 1-ounce slices per meal = $1\frac{1}{2}$ pounds wheat flour.

No flour to be used for cooking or as macaroni, crackers, pastry, cakes, as wheat breakfast cereals, or to thicken soups, sauces, and gravies.

Group 3. For those who wish to serve by saving more than is asked. Wheatless days and meals observed literally, by making muffins, griddle cakes, and other hot breads with 100 per cent substitutes or by using potatoes, rice, and hominy instead of bread.

Bread allowance. (11 wheatless meals in week) 10 meals using two 1-ounce slices Victory Bread per meal = 20 ounces = 11½ ounces wheat flour.

Additional wheat products. Choose from the list, showing the wheat flour in average servings of foods, those which contain the smaller amounts of wheat flour. Omit entirely such products as wheat breakfast cereals which are extravagant in their use of wheat.

AMOUNT OF WHEAT FLOUR IN AVERAGE SERVINGS

<i>Breakfast Cereals</i>	Wheat Flour ounces
<i>Ready-to-serve</i>	
Rolled flakes—1½ cup—2 servings	1
Shredded wheat biscuit (1)	1
Granular (e.g., granenuts) ½ cup	1
<i>To-be-cooked</i>	
Rolled flakes, ½ cup cooked, ½ cup uncooked	1
Granular (e.g. cream of wheat, farina, etc.), ½ cup cooked, ½ cup uncooked	1
Macaroni or spaghetti, ½ cup cooked, ½ cup uncooked	1
Noodles, 1 tablespoon	$\frac{1}{4}$
Bread, 1 ounce slice (3 x 3 x ½)	$\frac{1}{2}$
Crackers, (all wheat) 2 saltines	$\frac{1}{4}$
Biscuit, (50-50 rule) one medium biscuit (6 from 1 cup flour)	$\frac{1}{4}$
Muffins, (50-50 rule) one muffin, (6 from 1 cup flour)	$\frac{1}{4}$
Cake, (50-50 rule) one medium serving (24 servings from 3 cups flour recipe)	$\frac{1}{4}$
Pie, one crust, (50-50 rule) one serving (6 servings from ¾ cup)	$\frac{1}{4}$
Soups and stews, (e.g., thickened cream soups) soups, 1 cup serving, 1 tablespoon flour	$\frac{1}{4}$
Sauces, (in creamed and scalloped vegetables, gravies, croquettes, etc.). ¼ cup serving ½ tablespoon flour	$\frac{1}{8}$

UNTIL THE NEXT HARVEST

USE WHEATLESS BREADS AND CAKES

From the Experimental Kitchen, Home Conservation Division, United States Food Administration

WHEATLESS SPONGE CAKES

Barley Sponge Cake

4 eggs
1 tablespoon lemon juice
 $\frac{1}{8}$ teaspoon salt
1 cup sugar
 $1\frac{1}{2}$ cups barley flour

Oat Sponge Cake

4 eggs
1 tablespoonful lemon juice
 $\frac{1}{8}$ teaspoon salt
1 cup sugar
 $\frac{1}{2}$ cup oat flour
 $\frac{1}{2}$ cup corn flour

Corn (Flour) Sponge Cake

4 eggs
2 tablespoons lemon juice
 $\frac{1}{8}$ teaspoon salt
1 cup sugar
1 cup corn flour

Rice Sponge Cake

4 eggs
2 tablespoons lemon juice
 $\frac{1}{8}$ teaspoon salt
1 cup sugar
 $\frac{3}{4}$ cup rice flour

Directions: Beat the yolks of the eggs till thick and lemon colored; add the sugar gradually, with the salt and lemon juice and beat thoroughly. Then add the stiffly beaten whites and the sifted flour and fold them in lightly. Bake in an ungreased pan for thirty-five to forty minutes in a moderate oven (365° F.). The temperature may be raised slightly during the last half of the baking (to 400° F.).

These cakes follow the old-fashioned rule of "the weight of the eggs in sugar and half their weight in flour" (pastry flour). They have been made over and over again and have received the approval of a large number of people. They are all very nice and light, with texture and color good. The barley has its characteristic flavor. The corn cake is especially tender. The extra lemon juice used with the rice and corn covers up the starchy taste so often found with these flours.

In place of the oat flour, rolled oats run through a food chopper may be used. This may be sifted if a fine flour is desired.

BAKING POWDER LOAF BREADS

Barley and Oat Bread

1 cup liquid	6 teaspoons baking powder
4 tablespoons fat	1 teaspoon salt
4 tablespoons syrup	2 cups (5 ounces) barley flour
2 eggs	1 cup (5 ounces) ground rolled oats

Directions: Mix the melted fat, liquid, sirup, and egg. Combine the liquid and well mixed dry ingredients. Bake as a loaf in a moderately hot oven (400° F. or 205°C.) for one hour or until thoroughly baked.

Nuts, raisins or dates may be added if desired. The loaf should not stand after mixing.

OTHER COMBINATIONS

One and one-third cups (5 ounces) of corn flour may be used in place of the barley flour, giving an Oat and Corn Flour Bread. Since this is a little dry, it is much improved by the addition of raisins or raisins and nuts. Corn Flour and Buckwheat Bread may be made by using 1 $\frac{3}{4}$ cups (5 ounces) of corn flour and one cup (5 ounces) of buckwheat flour.

COMPARATIVE WEIGHTS AND MEASURES

Reprinted from the March JOURNAL with corrections

	WEIGHT IN GRAMS	APPROXIMATE NUMBER OF OUNCES
1 cup white bread flour.....	113	4
1 cup pastry flour	100	3 $\frac{1}{2}$
1 cup barley flour.....	76	3
1 cup buckwheat flour	11	5
1 cup corn flour	109	4
1 cup rice flour.....	131	5
1 cup cornmeal fine.....	114	4
1 cup cornmeal coarse.....	130	5
1 cup rolled oats.....	75	3
1 cup fine granulated oats or 1 cup ground rolled oats run through food chopper.....	136	5

The new flours and meals are not yet standardized and they vary so greatly in character that it is difficult to establish an exact relation between their measure and weight. As has been said before, in cakes, muffins, and baking powder mixtures, repeated experiments have shown that they can be substituted successfully for equal weights of white flour. Combinations of different flours seem for some reason often to be more satisfactory than the use of one flour.

EDITORIAL

Home Service Work of the Red Cross. The following resolution was passed at the meeting of the Association in Atlantic City:

The American Home Economics Association in convention assembled wishes to extend to Mr. Persons of the American Red Cross its appreciation of his contribution to the program and its desire to coöperate in the important work of Home Service in the Department of Civilian Relief; therefore be it

Resolved, That the President be authorized to appoint a committee to draft a statement to be sent to our members after consultation with Mr. Persons urging their local coöperation with the Home Service work.

In accordance with this resolution this call to service has been formulated:

AN APPEAL TO EVERY HOME ECONOMICS WORKER

As a home economics worker you are urged to offer your services to your local Red Cross organization in connection with its Home Service work as well as in connection with its teaching work and its supply service.

The Home Service Sections have been organized in many chapters as a means of carrying on the Red Cross duty of adequately caring for the families of men in the service. With the increase in the numbers of these men in service will come an increasing need for Home Service work, and new Home Service Workers are being constantly enlisted and trained.

Many of the families of the soldiers and sailors need advice and help of the kind which home economics workers are especially well qualified to give, such as advice concerning better food habits, better household management, better budget planning, better clothing standards. Also many of the Home Service Workers need special home economics training in order to help them to advise families more wisely.

Training classes for Home Service Workers are being held by many of the Red Cross Chapters, and Home Service Institutes are being held in certain cities for the training of specially qualified leaders from various chapters so that they may better take charge of local Home Service Work.

In the recommended course for both the training class and the Institute, it is planned to devote two hours to the discussion of budget planning and dietary supervision. If such courses are being given locally, you have a definite means of service in connection with this instruction to volunteer visitors in certain phases of home economics. In addition your service can well be utilized by Home Service Workers for consultation purposes and for the preparation of special suggestions to be given by the Home Service Worker to families under her care.

If you have time, much service can probably be rendered if you will plan with your Home Service Section to visit one or more families regularly each week and try to be a good friend to them as well as helping them to a higher living standard. Such work involves special social training in addition to home economics training. This may be secured in one of the Home Service courses, or much may be learned from the following bulletins: "This Side of the Trenches with the American Red Cross;" "Home Service;" "Home Service Manual." These may be secured free of charge from your local Red Cross Chapter or by application to the Department of Civilian Relief, American Red Cross, Washington, D. C. Here also may be secured further information concerning opportunities for Home Service work.

CATHARINE J. MACKAY.

THE ELLEN H. RICHARDS FELLOWSHIP IN HOME ECONOMICS

The Richards' Fund Trustees have renewed for 1918-19 the coöperative arrangement with the University of Chicago for the maintenance of a fellowship in memory of Mrs. Richards, with a value of \$500.00, and in addition tuition in the University.

Applicants must hold the bachelor's degree and be equipped to undertake graduate study. Application must be made before June 15 to the Office of the Graduate Schools, University of Chicago.

This is an unusual opportunity for one who wishes to do advanced work in household administration or some subject related to home economics.

Miss Minna Denton, formerly instructor at Lewis Institute and at Ohio State University, has held the fellowship during this year, working on her thesis for her doctor of philosophy degree.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Household Management. (Social Work Series). By FLORENCE NESBITT. New York: Russell Sage Foundation, 1918, pp. 169. \$0.75. By mail of the Journal, \$0.80.

This little book which has just come out in the Social Work Series, published by the Russell Sage Foundation, edited by Miss Mary E. Richmond, is invaluable in the present war emergency. It outlines methods for the home visitor who seeks to improve the standards of living by first-hand contact with individual families. After the introductory chapter it discusses in turn the following topics: Problems of the Visitor to the Home; Aids to Health and Household Management; Dietary Standards; Choice of Foods; Purchase, Preparation, and Serving; Housing and Homemaking. In the appendix are given suggestions for a talk on Milk; Special Diet Lists, and Average Weights and Heights of Normal Children.

The author, Miss Nesbitt, has a unique experience in this field as a member of the staff of the United Charities of Chicago and later of the Mothers' Pension Department of the Chicago Juvenile Court, in which connections she was personally dealing at first-hand with hundreds of families needing aid in raising their standards of living. She is at present Director of the Food Conservation Section of the Cleveland Council of National Defense.

The book is most timely as it gives a practical treatment of the problems which food conservation workers are everywhere facing. It will be of particular help to the Home Service workers of the local Chapters of the Red Cross. Home economics workers

are now being urged as a part of their local service to attach themselves to the local Red Cross Chapter in its work with soldiers' families. This book will promote such co-operation in a successful way. It should also prove helpful to home economics teachers in cities as a means of giving them information concerning the living standards in families from which their pupils come.

B. R. ANDREWS.

A History of Ornament, Ancient and Medieval.

By A. D. F. HAMLIN. New York: The Century Company, 1916, pp. 406. \$3.00.

At the present time, when so much emphasis is being placed upon the primitive designs of America, household art teachers are interested in this book by Professor Hamlin. In the introduction the author points out that "in this volume attention is directed to the origin and development of the historic styles of ornament, all the various motives, kinds, and types of ornament of each country and period being considered in discussing the style of that time and region." He has covered the subject very systematically and completely. The first chapter is devoted to primitive and savage ornament followed by chapters on Egyptian, Chaldean, Assyrian, Pre-Hellenic Greek, Etruscan, Roman, Pompeian, Early Christian, Byzantine, Romanesque, and Gothic. Under the various developments the author has discussed the people and enough of the history to make the setting clear; the general characteristics of that particular style of decoration; the various motives used and the origin and development of each.

The descriptions and illustrations are not confined to architecture but cover all the

applications peculiar to the period. The Gothic includes wood carving, metal work, textiles, tiles, manuscripts, and stained glass windows but with the emphasis upon architectural decoration.

The book is completely indexed with a list of some 400 illustrations. The illustrations are conveniently arranged for use as reference material.

MABEL RUSSELL,
*Household Arts Instructor,
Iowa State College.*

A Manual of Household Accounts. Including Complete Instructions, Illustrative Figures, and Forms for Actual Use Covering Three Years. By J. CHESTER CRANDELL, C.P.A. and MERCY FRYE CRANDELL. Boston: Whitcomb and Barrows. 1917. pp. 24. + account forms. \$2.00. By mail of the Journal, \$2.15.

This book is a real contribution to the literature of household accounts as it provides a method of putting the financial record of a family into complete accounting form, which makes it possible to summarize one's financial situation, "as to cash receipts and payments, as to income and to expenditure," and also as to a balance sheet showing "assets and liabilities." These summaries are the end point in all business bookkeeping, but so far, in the account books on the market, household accounting has been almost exclusively a record of money received and spent currently, and the summaries provided have simply been monthly and annual recapitulations of cash actually received and spent.

It is quite another matter to bring into the household financial record such changes in value as depreciation, wear and tear, and to take account of accrued income which has

not yet been received, and of current debts which have not yet been paid, and of advance payments which have been made during the present period of time but which in reality cover expenditures following in the future periods, as is the case, for example, with fire insurance which is generally paid in three-year periods in advance.

As to household accounts, in their relation to property values, like real estate, and to standing debts, like mortgages, they have never brought in such accounts except in cumbersome ledger and journal method. The Crandell Manual presents all this in a remarkably simple and intelligible form. One is encouraged to keep one's cash records of receipts and payments by whatever method one has used in the past, but one transfers the summaries of such cash records at the end of the month to the Crandell Manual where they become part of a systematic accounting record.

The Crandell book provides blanks for three years' accounts, so that it is a permanent household record of much value.

It should prove very useful as a text book in household accounting courses, in presenting briefly a view of bookkeeping science applied completely to the household—providing for records of all income and expenses, whether in the form of cash, credit, or of changing values, and also of all resources and liabilities of the household partnership.

Every college department of home economics should give a thorough course in household accounts, which should give a complete view of bookkeeping applied to the home as well as of simple cash records of various types. This text will greatly help in such a course.

B. R. ANDREWS,
Teachers College, New York City.

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NEWS FROM THE FIELD

Farmers' Week at Ohio State University, January 28 - February 1, proved successful notwithstanding the congested transportation, the intense cold weather, and shortage of labor on the farms.

The meeting was opened with an address of welcome by President Thompson in joint session with the men. Interest centered on the problems which have arisen out of the present world war. It was a war week. Opportunity was afforded those in attendance to learn what the women of Ohio can do and are doing to help win the war. Emphasis was placed upon the necessity of the organization and cooperation of all the forces in each community. It was urged that women cooperate with the organization in existence and thus avoid duplication of effort.

The main subjects presented in the meetings were production, conservation, thrift, the Red Cross, and child welfare. Conservation of food and clothing were presented by lecture, demonstration, and exhibit. An exhibit entitled "The road to food conservation" showed six weeks menus in which were eighteen wheatless, fourteen meatless, seventeen fryless, and twenty-one pieless meals. Child welfare posters were displayed; infants, small children's and school children's clothes illustrated, and new clothes from old were shown at various stages of progress.

Red Cross work was presented through an exhibit of surgical dressings, hospital garments, and knitting. Dr. Hagerty, head of the Department of Economics and Sociology who has been called from the University to Red Cross service told of the work of the Red Cross in its dual activities, i.e., military and civilian relief.

Exhibits of available literature on timely subjects, and picture and picture hanging

also formed a part of the program for the week.

In the last hour of the session President Thompson reviewed the present situation of our country and the world in which the war has developed a new condition which is more closely related to the food situation than we had believed possible. He also recalled the part which the women of the countries have taken in this crisis and must continue to take, especially in the conservation of the world's goods.

Throughout the week splendid interest was manifested in the ways and means of rendering the greatest service to our people and allies.

The Connecticut Home Economics Association met at the Hartford High School on Saturday, February 16, in connection with the regular meeting of the Connecticut State Teachers Association, with the President, Mrs. Edith Hatch Brown, of Boston, in charge.

Mr. E. G. Routzahn, of the Russell Sage Foundation, and Mr. Guy C. Smith, of the Bureau of Markets, gave addresses.

Mr. Robert Scoville, Federal Food Administrator, spoke on Food Conservation in Connecticut, and Mrs. Mary Schenck Woolman on clothing. The remainder of the afternoon was given over to the following sectional meetings:

Teachers Section, Chairman, Miss Catherine B. Case; Home Section, Chairman, Miss Annie I. Robertson; Institutional Management, Chairman, Miss Orissa M. Baxter; Social Workers, Chairman, Miss Sara Holbrook.

An exhibit illustrated the uses of meat, fat, sugar, and wheat substitutes, and restored dried foods.

Every woman interested in the great and

vital problem of "The Home" was welcomed at the meeting.

PROGRAM

Teachers' Section. Mr. Guy C. Smith, Field Agent in Marketing, Connecticut Agriculture College; Coöperation of Domestic Science Teachers with the Extension Work, Miss M. E. Sprague, Connecticut Home Economics Director; How to Correlate the Art and Sewing Departments, Miss Iva Abby, Hartford; Sewing in the Grammar Schools, Miss Florence Chapin, Hartford; Vocational Cookery, Miss Mabel Gessner, New Haven; How the Lunch Counter Pays Its Way, Miss Margaret Robinson, Meriden. Visit to Hartford High School Cooking and Sewing rooms where Mrs. Juanita M. Dean and Miss Annie I. Robertson explained the High School Courses and the method of carrying on the Red Cross work in the school.

Homemakers' Section. Two papers were: The Place of the Home Economics Teacher in the Community, Miss M. E. Sprague, Chairman State Home Economics Association; The Homemaker's Place in the Home Economics Association, Mrs. E. H. Brown, President Connecticut Home Economics Association.

The Annual Session of the Alabama Home Economics Association was held at the Alabama Girls Technical Institute at Montevallo, Alabama, on the first and second days of February. Among the speakers were Miss Anna Richardson, Field Agent for Home Economics of the Federal Board for Vocational Education; Mr. R. E. Tidwell, Director of Institutes for the State Department of Education; and Mr. R. H. Mangum, Director of Public Information of the United States Food Administration for Alabama.

American Home Economics Association. The officers elected at the Atlantic City Meeting are: President, Catharine J. MacKay; Vice President, Isabel Bevier; Secretary, Cora Winchell; Treasurer, H. Gale Turpin.

Notes. As a part of the general food conservation program the students of the department of home economics of the University of Montana prepared for display in a downtown window in Missoula samples of good things to eat made with substitutes for sugar. Displays were made of substitutes for wheat, for fats, and for meat. The faculty of the department is in charge.

The Department of Home Economics of the State University of Montana is now requiring that its students take a course in news writing given under the auspices of the Montana School of Journalism.

Mrs. Ann Gilchrist Strong was granted a year's leave of absence by the University of Cincinnati, and in September she sailed for India. Here she is studying food conditions and planning to introduce work in home economics in the schools and to inaugurate modern methods in the palaces and institutions. She is working under the Minister of Education.

Miss Mary F. Rausch, assistant professor of home economics in the extension division at the University of Washington, died at the Seattle General Hospital, February 21.

Miss Rausch went to the University of Washington in the fall of 1914. Through lectures, demonstrations, and printed material she has been able to reach thousands of women throughout the state in the interest of efficient home management. Miss Rausch studied at the Iowa State College and became the head of the home economics department in the State Agricultural College of Colorado. She left Colorado on account of her health and traveled for several years in Europe, studying methods of household management. Upon returning to America she took charge of the home economics department of the high school in New Rochelle, N. Y., and from there accepted the appointment at the University of Washington.

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

Editorial Board

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"VOLUNTEER WAR GARDEN ARMY"

In his letter, which follows, the President approves the design of Secretary Lane to arouse the school children of the United States to "as real and patriotic an effort as the building of ships or the firing of cannon:"

MY DEAR MR. SECRETARY:

I sincerely hope that you may be successful through the Bureau of Education in arousing the interest of teachers and children in the schools of the United States in the cultivation of home gardens. Every boy and girl who really sees what the home garden may mean will, I am sure, enter into the purpose with high spirits, because I am sure they would all like to feel that they are in fact fighting in France by joining the home garden army. They know that America has undertaken to send meat and flour and wheat and other foods for the support of the soldiers who are doing the fighting, for the men and women who are making the munitions, and for the boys and girls of Western Europe, and that we must also feed ourselves while we are carrying on this war. The movement to establish gardens, therefore, and to have the children work in them is just as real and patriotic an effort as the building of ships or the firing of cannon. I hope that this spring every school will have a regiment in the Volunteer War Garden Army.

Cordially and sincerely yours,

(SIGNED) WOODROW WILSON.

*Hon. Franklin K. Lane,
Secretary of the Interior.*

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WHAT TO TEACH THE PUBLIC REGARDING FOOD VALUES¹

E. V. McCOLLUM

The School of Hygiene and Public Health, Department of Chemistry, Johns Hopkins University

During the last few years considerable progress has been made in the study of nutrition. It is important at this time that we should meet to discuss the question of whether or not we can introduce with profit some of the newer ideas to practical every day living. We have undertaken, as a phase of the work of the Food Administration, a campaign for the education of the people generally in the fundamentals of nutrition, which is without parallel, and it is important that the subject be presented in the best possible way. With a view to aiding in the solution of this problem, I want to suggest a new method of presentation of the subject matter now available in this field.

The learners in the present campaign are, of course, nearly all women. They may be divided into two groups. The first group is composed of highly intelligent women, who are, if they have leisure, leaders in the improvement of conditions in their communities. These women are, in many instances, not only able and anxious to learn what is the best practice in the selection of foods and their preparation, but want to know the reason for what they learn to do. These women should be taught what they want to know, and they should be made sources of authority to others in their neighborhood. The problem of equipping them not only with subject matter but with a method of adapting this to presentation to the second group is a very vital one.

The second group consists of women who are not capable of making application of abstract knowledge of food values to their own dietaries,

¹ Presented at the Tenth Annual Meeting of the American Home Economics Association, Atlantic City, March 1, 1918.

but need to be told concretely what to do. In their instruction the "reason why" when useful at all serves merely to lend vividness and dignity to the arbitrary dictum of what to do, and cannot be relied upon to furnish a basis for independent applications.

It is the first group of women that the Food Administration aims to reach through the conservation courses now being instituted everywhere in colleges. Through them, mainly, the second group will be reached. The effectiveness of the instruction of this second group, who constitute the largest factor in the actual saving of certain foods, will depend in large measure upon the point of view imparted to the leaders in the conservation classes. It is among these, after all, that the keenest necessity for knowledge exists, in order that they may properly plan dietaries for those for whom they purvey.

I would not suggest an abandonment of the classification of foods on the basis of chemical composition. We must have a language of nutrition, and must use the terms protein, carbohydrate, fat, and mineral elements, as we have been doing. Students should be taught which foods are low and which are high in protein, and should become familiar with the approximate amount of available energy of each of the different types of foods. I have thought a great deal about the possibility of formulating ten or twelve commandments of nutrition, which, if committed to memory and obeyed in the selection of food, would make the body a restful abode for the soul. One cannot hope now to formulate such knowledge as is desirable in a form which could possibly remain long without need of revision, for the subject of nutrition is still a growing one; yet, I am tempted to undertake to offer a few generalizations which will help to guide in the proper selection of food. Before stating these, I want to briefly call attention to several matters which should occupy the attention of teachers of the science of nutrition.

One of the outstanding results of modern research in nutrition is the great differences in the biological values of the proteins from different sources. In a general way this fact is appreciated by nearly all teachers of today, but many are still in need of clearer distinctions regarding what data in the literature is capable of direct application to practical nutrition, and what is of such a nature that it cannot be so applied. No lack of appreciation of the data of the latter type is intended, for it may have, and frequently has, a value of the first importance to the investigator in this field. As an example may be cited the laborious studies through which the amino-acids became known, and the data

yielded by such methods of analysis of the proteins as those of Fischer and Van Slyke. Important as these results are in making possible further progress, they are not of such a nature that they apply, as they have been frequently applied, to deductions concerning comparative food values. It is through these results that we have arrived at a valid working hypothesis concerning the nature of the proteins, and have been able to appreciate why the proteins are not all of equal value. It is, however, but a fraction of the total number of the amino-acids of proteins that can be determined by these methods in a manner approximating a quantitative way. An attempt to utilize the figures for the yields of this or that amino-acid by this or that protein as evidence of the comparative values of the proteins themselves, or the food-stuffs from which they are derived, will lead to entirely fallacious deductions.

Such data for example as are tabulated in the literature for the yields of the different amino-acids, make the pea and bean proteins appear superior to those of wheat and corn kernels. Chemical analysis has indicated that the proteins of the pea and bean are not one-sided in composition with respect to any amino-acid which can be determined at all satisfactorily, and there are none of the essential ones absent entirely. In fact, there seem to be such proportions among them as would indicate relatively high values for these proteins and would seem to justify the characterization of these legume seeds as "the poor man's meat." Properly planned feeding experiments were performed to determine what is the lowest plane of intake of certain proteins which just suffices to maintain a rat without loss of body weight. When the protein was derived solely from these four seeds singly, with the diet otherwise satisfactorily constituted, the surprising fact was shown that the pea and navy bean proteins have but about half the biological value of those of the cereal grains. It requires about 6 per cent of wheat or corn proteins to maintain an animal in body weight, whereas 11 to 12 per cent of either navy bean or pea proteins are necessary for this purpose. We have been inclined to place too much confidence in the results of chemical analysis of foods. We must rely more upon the biological method. The latter is, however, not without its pit-falls.

The great danger in the use of data obtained by biological methods, as distinguished from that of chemical methods, lies in judging which experiments are so planned and controlled as to yield results which are satisfactory. It would be out of place at this time to attempt to point

out specific instances where data which, on appearance in print appeared to be of extraordinary interest, and seemed to establish new view points, but were later shown to be of little value because the plan of the experiment was faulty or inadequate in its scope.

A note of warning should be sounded against an over enthusiastic and indiscriminate application of certain types of experimental data from feeding experiments with restricted dietaries, especially where children are concerned. I have in mind particularly the type of experiment in which there is a "diet squad," living for a brief period on rations which may be entirely inadequate in their make-up for the maintenance of health over a long period. They may not be, however, of such a character as to influence the well-being of vigorous men or women in the prime of life, especially when the experiments are of but short duration. The deductions from such data are of no value, and may be pernicious when interpreted to apply to the solution of problems relating to the nutrition of the child.

In some measure the same caution applies to such admirably controlled experiments as have been recently described, in which it appeared that the nitrogen of the potato is of extraordinary food value. Results which have recently been obtained in my laboratory, in which the nitrogen of the potato served as the sole source of this element, and the diets were satisfactorily constituted in all other respects, and the element of growth or maintenance over a long period was involved, have demonstrated to our satisfaction that the nitrogen of the potato is of decidedly lower biological value than that of the cereal grains, oats, wheat, and corn. Students and teachers who are not themselves closely in touch with the experimental procedure, are liable to underestimate the danger of error in accepting the results of short experiments. They should fully appreciate that it is not safe, with such data as a basis for deductions, to make recommendations concerning comparable dietaries for consumption over a long period of time. Such deductions have not infrequently been made, even when the claims of the author as to the scope of application of his data were properly qualified. Some short experiments are of great value. It is a fairly common practice in many institutions where nutrition is being taught, or dietary problems studied, to have groups of students keep records over a period of a week or more of their nitrogen intake and output. Such experiments have a real educational value, just as has all elementary experimental work, but not infrequently

the most unjustifiable deductions concerning the adequacy of the diet are drawn from such data. The mistake lies in leaving the student with the idea that the results are of greater practical value than they really are. The problem for which there is no easy solution, is that of acquiring judgment as to the worth of different experimental data. It must be admitted that intelligence, interest and wide reading will not assure the acquisition of such judgment. It is to be gained only by actual experience with the experimental method of study, coupled with an amount of critical reflection on the data of others, which will tax the strength of the most vigorous and courageous.

In order to appreciate why it is desirable, for purposes of instruction, to adopt a grouping of the natural foods based upon their special dietary properties as shown by an elaborate system of feeding experiments, it is necessary to fully understand some of the newer viewpoints brought out by the more recent researches in nutrition. The importance of protein has been in the past emphasized to a degree which minimized the importance of all other factors in the diet except energy value. It is now clear that the composition and amount of the mineral constituents of the food is a matter of very great importance, and that variety and wholesomeness in the food supply does not at all assure that this part of the diet will be satisfactorily constituted.

Aside from energy, protein, and inorganic factors, a diet, to be adequate, must contain two substances, the chemical natures of which are as yet unknown. To these I have given the names fat-soluble A and water-soluble B. When the diet is satisfactory, except that it lacks the fat-soluble A in sufficient amount, animals develop a peculiar edematous condition of the eyes and soon become blind. The addition of the missing dietary essential leads to their prompt recovery. This eye trouble is a type of xerophthalmia. The fat-soluble A is found most abundantly in butter-fat, milk, and egg yolk, and to a lesser extent in the leaves of plants. It also is found to some extent in seeds, but is in most seeds in too small amount to supply the needs of a growing animal. Such foods as are derived from the endosperm of the seeds do not contain this substance. It is not found in any vegetable fats or oils. Muscle tissue and the body fats contain very little of this substance but the glandular organs contain more of it. The water-soluble B is present in abundance in all natural foods except those derived from the endosperm of the seed, e.g., bolted flour, degerminated cornmeal, polished

rice, starch, sugars, and fats and oils of both animal and vegetable origin. When the diet lacks this substance, but may be otherwise adequate, experimental beri-beri characterized by paralysis results.

There are certain general statements which can now be made concerning the dietary properties of the several classes of natural food-stuffs, which seem to me to greatly simplify the problem of instructing students in the wise selection of foods and in making such combinations as will assure a safe diet. In so far as the peculiar qualities of the natural foods have been determined with certainty, it is presented in the following summarized form. All students should be thoroughly impressed with the following facts:—

1. That food-stuffs may be logically classified into groups which possess special properties, and that certain combinations of these, though their composition as shown by chemical analysis may appear good, do not give satisfactory results in the nutrition of man and animals. In fact, the recent work in the study of nutrition has made possible the introduction of a new feature in discussing the properties of foods on the basis of the data obtained by the biological method, i.e., their properties as revealed by properly planned feeding trials.

2. It may now be considered definitely established that it is not possible to secure adequate human nutrition with diets derived solely from seeds, no matter how complex the mixture; nor with combinations of seeds with meat; nor with seeds and tubers. All these types of mixtures of sound and wholesome food-stuffs fail to maintain the highest bodily efficiency, resistance to disease, and capacity to produce and rear young.

3. The reasons man and animals do not thrive on a diet derived entirely from seeds are found (a) in the relatively low inorganic content, their deficiencies in this respect being limited to the elements sodium, chlorine, and calcium, and possibly to a slight degree, iron also; (b) in the relatively poor biological value of their proteins; and (c) on the low content of the unidentified dietary essential, fat-soluble A. The seeds fail to supply enough of this substance to support normal well-being over a prolonged period.

A young animal fed on any one of the ordinary seeds such as wheat, oats, rye, barley, peas, beans, hemp seed, millet seed, fails to grow. It will likewise fail to grow on a mixture of a seed with a purified protein such as casein; or of seed with such a salt mixture as makes good all the deficiencies of its inorganic content. A small amount of growth may be

obtained on such seed and salt mixtures in a few cases, but it fails to induce even half the normal amount of growth, and reproduction will be wanting and the span of life very brief. With mixtures of seed and a growth promoting fat, such as butter fat, there is no growth whatever.

When two purified food additions such as protein and salts, protein and a growth-promoting fat, or a salt mixture and a growth-promoting fat are added to a seed, growth is secured in those cases only in which one of the additions is a salt mixture. Even with these, there will be practically no reproduction, and the span of life will be short—about a third or less of the normal life period of the well fed animal in the case of the rat. With three purified food additions—protein, salts, and a growth-promoting fat—the cereal grains are so supplemented as to be complete from the dietary standpoint.

Since the seeds are all constituted on the same general plan, it follows that it should be impossible to secure adequate nutrition with any mixture of seeds, and numerous trials have shown that this is the case. The protein factor in mixtures of seeds may be of very satisfactory quality in some cases, so that with certain seed mixtures the dietary deficiencies are reduced to two, viz., the inorganic content and the content of the fat-soluble A.

4. There are two classes of foods, milk and leafy vegetables, which should be designated as *protecting foods*, because they are so constituted as to make good the dietary deficiencies of the seeds and tubers which nevertheless must always remain our principal sources of energy and an important source of our protein and inorganic salt supply. Milk and the leafy vegetables have a value which cannot be expressed in terms of energy or of protein. They are *protecting foods* not because they furnish elements of mystery which are not to be had in other foods, but because they correct the faulty composition of the seeds and tubers and the seed products in respect to protein, inorganic salts, and the fat-soluble A.

5. While it is a mistake to derive the diet too largely from the seeds of plants, such as wheat, oats, corn, rye, barley, kaffir, peas, beans, peanuts, it is a still greater mistake to derive the diet too largely from products prepared from the endosperm of the seeds. In this group are bolted flour, degerminated cornmeal, polished rice, (rice which has been deprived of its germ and bran), starch, sugars, and syrups. Such a list of foods will not maintain health, even when supplemented with

fairly liberal amounts of meat and fats. This is the type of diet which is being employed in certain parts of the South at the present time, especially in those parts where pellagra is prevalent, and is without doubt a predisposing factor in the causation of the disease. This conclusion is supported by the demonstration of Goldberger, that the disease yields fairly readily to suitable dietetic measures. The use of liberal amounts of tubers such as potatoes and sweet potatoes will not safeguard the health of the people living on such a diet. It is likewise not easy for them to eat a sufficient amount of the leafy vegetables to correct the faults in such a diet. The use of liberal amounts of milk is the most important change which could possibly be made in those regions where pellagra is common. Meat does not take the place of milk in the diet.

6. The use of milk is the greatest factor of safety in our diet. We have been deriving from dairy products in the past about 18 per cent of our food supply, the same is true of the leading nations of Europe, but some of them, as the Swiss, have used much more milk than we have. Do not attempt to compare the cost of milk with that of other foods. It is also starting from a wrong premise to compare the cost of wheat, corn, oat and rice products, with that of leafy vegetables, such as cabbage, cauliflower, Swiss chard, collards, Brussels sprouts, lettuce, celery, spinach, and onions. Look upon these as *protective foods* and eat of them liberally. They should not be considered foods of low value because they contain much water and but little protein, fats, or digestible carbohydrates. What they possess of the energy yielding foods and proteins are good, but they stand in a class by themselves among the vegetable food-stuffs in the character and amount of their mineral content (in dry leaves from three to six times that of the seeds), and in their content of the unidentified dietary essential, fat-soluble A. In a general way they supplement the seeds and tubers.

7. There has during the last six years been a popular belief in the existence of a number of substances to which Funk gave the name of "vitamines," and concerning which there is at present much misconception. It has been proposed, without anything like adequate experimental evidence, that there is a considerable number of such substances, each serving by its presence in the diet, to protect against a certain type of malnutrition, such as beri-beri, scurvy, pellagra, and rickets. Some have likewise postulated the existence of still other substances of unknown chemical nature, which are essential for growth as contrasted with maintenance.

Recent experimental work by the writer and his associates has established the fact that there are in reality but two such unidentified chemical substances which are physiologically indispensable. These we call fat-soluble A and water-soluble B. This has been shown by two lines of evidence: First, chemical evidence on the basis of solubility which is fairly convincing that we are dealing in water-soluble B with but a single physiologically indispensable substance. The probability is very small that there should be several substances, all of which are about equally soluble in certain solvents, and equally insoluble in another series. We have recently discussed this point at length.

Second, We feel convinced that scurvy and pellagra are not diseases due to lack of "vitamines" in the diet. They follow the long continued use of faulty diets, but the cause is of an entirely different nature from that responsible for beri-beri or the xerophthalmia of dietary origin. These two latter pathological states are in reality each the result of the absence or lack of a sufficient amount of a specific chemical substance which the normal diet should supply. Beri-beri does not occur in the United States. This shows that with respect to this dietary factor there is no problem in this country, even in those sections where diets are of the poorest quality. Xerophthalmia of dietary origin is very rare, a fact which would lead to the conclusion that there is no "vitamine" problem in human nutrition in this country. We have, however abundant experimental data which demonstrate that diets derived exclusively from cereal grains furnish less of this substance than is needed to induce the best results in the nutrition of animals. There can be no doubt that in certain districts in the United States at the present time, diets are relatively common which would be enhanced by the inclusion of foods (milk, eggs, and leaves) which would increase the content of fat-soluble A in the diet. These foods would, of course, likewise serve to improve the diet in other respects.

From what has been said it will be evident that the popular belief in the need of care to take special foods "rich in vitamins" of numerous kinds has crowded out of consideration the real and pressing problem of practical nutrition. There is no danger that we shall suffer from lack of the anti-beri-beri substance, water-soluble B, unless we shall limit our food supply almost entirely to articles derived from the endosperm of seeds, products such as bolted flour, degerminated corn meal, polished rice, starch, sugars, and vegetable fats. If the diet should be so re-

stricted we should be in jeopardy fully as much because of the poor quality of the proteins of the food, and its poor inorganic content, and the lack of the dietary essential fat-soluble A, as from the factor first mentioned. There is some danger that with diets restricted to seeds, meats, and tubers, we shall obtain less of the fat-soluble A than is necessary for the promotion of the optimum physiological well-being. The "vitamine" problem is, however, much simpler than has been generally believed.

It is highly desirable that we should discuss the chemically unidentified constituents of the diet in terms no more extravagant than are employed for the other indispensable constituents of the normal diet. We should cease to use such expressions as "substances vitally necessary for health and growth;" "growth promoting substances," when we employ no such terms with regard to dietary factors such as calcium or other mineral element. The latter forms a problem of some gravity in the selection of foods, and is indeed fully as important as is the problem of securing sufficient "vitamines."

The results of experimental feeding reveal the natural foods in a new light and warrant their classification on the basis of function rather than of chemical composition. This is well illustrated by the pronounced differences in the dietary properties of the leaf of the plant as contrasted with the seed. The reason for this is found in the difference in the function of these parts of the plant.

The seed consists of a tiny germ composed mainly of cells and a large endosperm which is principally a package of reserve food materials, and is comparable to a mixture of purified proteins, starch, sugars, fats, and inorganic salts. There are, of course, some cells in the endosperm through whose functioning the reserve food materials are deposited so as to form the peculiar structures seen in the seeds, but in a general way the seed as a whole is relatively much reserve food, and relatively little cellular material.

The leaf, on the other hand, is the laboratory of the plant in which are built up proteins, carbohydrates, and fats. While there are some leaves which serve as storage organs, and are gorged with reserve food-stuffs, the typical leaf is on both its surfaces a mosaic of actively functioning cells and the dry leaf is much more rich in cellular materials than is the dry seed. The two unidentified food essentials, fat-soluble A and water-soluble B, appear to be associated with the cell and not with the reserve

food-stuffs, and are accordingly more abundant in certain types of leaves than in seeds.

The germ or cellular portion of the seed is richer in mineral elements, and in the dietary factors A and B, than is the endosperm, especially that part which appears in bolted flour, degerminated corn meal, and polished rice. Furthermore, the proteins derived from the germ are symmetrically constituted in that they yield all the amino-acids of "complete" proteins and none in excessively great or small amounts. The dietary properties of the germ are, therefore, very different from the endosperm and resemble those of the leaf.

The tubers such as the potato and sweet potato, and the root crops, such as beets, turnips, radishes, are storage organs and, so far as they have been studied, tend to have dietary properties similar to the seeds rather than to the leaves of the plant.

It should be emphasized, however, that there are some variations in the dietary properties of different seeds. These depend upon the relative amount of the germ and the cellular elements just beneath the bran layer and in the endosperm on the one hand, and the amount of reserve food on the other. Doubtless very appreciable differences will be observed between the dietary properties of roots and tubers depending upon whether or not the skins, which are rich in cellular material, are eaten. Variation is likewise seen in the special value of leaves. In fleshy leaves like the cabbage, the leaf is specialized in some degree to act as a storage organ for starch, sugars, etc. Other leaves contain a delicate skeletal framework with little reserve food substances. In this class are the thin leaves which dry quickly when the plant is cut.

A similar contrast is seen between the dietary properties of the muscle tissue (steak, ham, chops) of an animal as compared with the glandular organs (liver, kidney, sweetbreads). The former are highly specialized contractile tissue, and are comparable with the seeds, especially in respect to the character and amount of the mineral elements, the content of fat-soluble A and water-soluble B. The latter are organs rich in cells and accordingly fall into the same general class as the leaves in their quality as food-stuffs. The character of the inorganic content of the glandular organs is not so satisfactory for making good the deficiencies of seeds as is the inorganic content of leaves.

While the classification on the biological basis cannot with safety be pushed to an extreme, *the dietary properties of the food-stuffs can be predicted in a general way from the function of the product used as food.* While

products having the same function may properly be compared with each other on the basis of chemical composition, tissues of either animal or plant origin which are rich in cellular structures cannot with safety be compared from the dietary standpoint with storage tissues. This classification of the food-stuffs on the basis of function, with emphasis on the fact that most of the food-stuffs have deficiencies which are corrected by milk and the leafy vegetables, should form the main thesis of the teacher of nutrition and dietetics. As the other subject matter of the course is presented these facts should again and again be reiterated.

From what has been said it will be appreciated that while variety tends to make in some degree for safety, the idea that a varied diet will necessarily promote health has in the past been accepted with too much confidence. The diet will be inadequate even if it is made up of a half dozen kinds of seeds such as the cereal grains together with the legume seeds and potatoes or other tuber or root foods, even when these are supplemented with moderate amounts of meats, and small amounts of the leafy vegetables. I do not mean to say that such a diet as that last described will lead to complete failure within a short time. Human experience teaches the contrary. What I wish to emphasize is that such a diet will not permit the most satisfactory development, nor will it promote health, resistance to diseases, or efficiency and longevity in the same degree as a diet containing liberal amounts of milk and leafy vegetables.

Two facts stand out with great prominence, viz., the paramount importance of milk as a regular constituent of the diet, and the great value of the leafy vegetables. If everyone in the United States could be taught that these two classes of foods are *protective* in character, in that they correct the faults in any other foods which we are likely to consume, and that it is a duty to include a fairly liberal amount of each of these in the diet each day, the benefit which would come from such a knowledge would be greater even than that derived from the knowledge we now possess concerning immunization against diseases. Everyone should be taught that it is a mistake to buy any meat until each member of the family has a pint of milk each day.

AMERICANISM THE SPIRIT OF COSTUME DESIGN¹

ETHELWYN MILLER

Professor of Household Art, Iowa State College, Ames, Iowa

Americanism is the keynote of the fashions of 1918. Up to the present time the designers of women's wear (by women's wear we mean hats, gloves, lingerie, shoes, and dresses—in fact, all of women's wearing apparel), have had for their source of inspiration the products of the Parisian designers' creative ability. Our designers have gone to Paris to get their ideas for the general form and for the accessories of costume. Not only have they gone to France for the style, as we call it, but they have gone for the design of the fabric itself. Our ribbons and silks, our velvets and woolen materials, all have been designed by the Parisian schools; and we in America have imported for our most exclusive, highest priced models, the Parisian designs.

Two years ago, with the beginning of the war, there sprang into existence in this country the first design contest for women's wear. That fact is a significant one because never had there been held in America a design contest for women's wear. This contest was held at the Art Alliance of America, in New York City, through the inspiration of M. C. A. Crawford, a Research Assistant in Textiles at the Natural History Museum, and was promoted by the newspaper called *Woman's Wear*. This newspaper, published in New York City, gives a daily report of industrial conditions underlying the making of textiles, shoes, and all sorts of woman's apparel.

This contest was open to professional artists, amateurs, and school children; and it is interesting to note that at the second contest, which was held this fall, there were 283 contestants ranging from eighty years of age to children of the fifth grade from the Paterson, New Jersey, schools. It is also interesting to note that two of the children from the public schools had their designs purchased by Marshall Field & Company to be used in manufacturing ribbons.

Along with this contest which was held at the Art Alliance was a second type of contest, called the Albert Blum Contest for Hand-Decorated Fabrics. This was the first time in America that a design contest had ever been held by a manufacturer. The principal types of

¹ Presented at the Tenth Annual Meeting of the American Home Economics Association, Atlantic City, March, 1918.

hand decoration for fabrics are the wax resist process called batik, the tie and dye process, block printing, embroidering, stenciling, and weaving. The batik and the block printing processes are being widely used, as may be seen by watching the fashion magazines and the newspapers.

These two types of contest, one promoted by a newspaper and the other by a manufacturer, both put emphasis upon design *created in America*, and inspired by the study of primitive American designs. "American" includes Mexican, Central American, and South American.

Many designs which are being printed on the cloth for women's garments are taken from Mexican baskets and Mexican pottery. The Museum of Natural History in New York City has sent one of its members to Central America to study the primitive designs of that country. In this fact we note a change in custom; instead of going to Paris to study design, our designers are beginning to go to Central America, South America, or Mexico, and they study in the Museum of Natural History the Indian baskets, Indian pottery, and Indian printing designs. The source of inspiration of design is *primitive American art*.

A third type of design contest is represented by the Wanamaker's Store Art Exhibit. The present contest is the sixth yearly one for their New York store. It is the twelfth contest for the Philadelphia store. It is open to school children between four and fifteen years of age in the public and private schools. Three thousand two hundred awards have been made in the last contest for originals, copies, and posters. The prizes are of various types. One of the prizes which seemed very much worth while was the loan of an exhibit of paintings from the Wanamaker Galleries to the school which received the most prizes in its exhibit. These paintings were hung in the school where the children might see them; and it is said that it awakened a great deal of interest in good paintings in the neighborhood where the school was located.

Wanamakers in the first years of their contests hung the prize winning pieces in the art galleries in their store, and the crowd of admiring friends and relatives was so great that they had to discontinue the practice. However, the fact that a big store like Wanamaker's thought it worth while to give prizes for public school art stimulated the public in general to recognize the value of the art of the public schools. It is a very significant fact that the stores are coöperating with the public schools in establishing standards for judging the worth of a commercial product in terms of its beauty. This same interest in developing the taste of the public is manifest by many department stores in both large and

small cities. For example, the L. S. Ayres Department Store of Indianapolis, designates certain weeks in the fall and spring as Home Furnishing Weeks, during which time, space is given for displaying the posters and drawings made by the children of the public schools in their lessons on house planning and decorating. The store not only brings the public school products to the notice of the general public but it gives of its knowledge to the children. For instance, one is not surprised to see a man, in oriental costume, lecturing on oriental rugs to a group of boys and girls of seventh and eighth grade age and illustrating his lecture by means of the rugs displayed in that department. The department stores are in this way helping very greatly in the development of the appreciation of art principles, which is absolutely necessary to the buying of good furniture, good rugs, good wall paper, and good pictures.

What are the museums and galleries of America doing for this development of American design? We find that the American Museum of Natural History in New York City has been having a series of lectures given by industrial experts to artists concerning the practical phases of art work. Artists naturally go to the Metropolitan Museum of Art but at the present time they are going to the Museum of Natural History to hear practical people talk about the practical phases of art work. As a result these artists are going to look at their designs in a more practical way, and realize fully the influence of material and processes of construction upon design.

Among the many who are lecturing to the artists may be mentioned two, James Chittick and Frederick C. Folsom. Mr. Chittick lectures on woolens, worsteds, silks, ribbons, and velvets. He is a textile expert, and is able to tell the designer whether his designs can be carried out by the machine and whether the colors can be obtained. Frederick C. Folsom of the F. A. Foster Company is lecturing on cretonne designing. When such men as these take their time to lecture to designers, they are making a contribution to the educational side of American industry which can not be measured. In this way, a body of artists will be trained in America who will produce beautiful workable designs.

In the Metropolitan Museum of Art we find artists telling the experts in industry the effective use of form, line, and color. Grace Cornell, of Columbia University, Prof. A. W. Dow's assistant in design, gave one of these series of Sunday afternoon lectures to industrial workers. Prof. Chas. E. Pellew, also of Columbia University, lectured here to designers, salespeople, and buyers, upon Dyestuffs of the Ancients. Actual dyeing

experiments have been conducted and specimens of dyestuffs and textiles both native and foreign have been shown. Ruth Wilmott of the same University lectured on costume design, and the effect of the various colors, lines, and values upon the proportions of the human figure.

At the Metropolitan Museum, in addition to these lecture courses, there was opened on December 3, 1917, a new textile gallery. The ceramic gallery, water color gallery, and sculpture gallery, are traditional parts of an art museum. The textile gallery now takes its place as a vital part of national art, at a time when the people are devoting so much attention to the manufacturing of materials. In that gallery are to be displayed embroidery, hand decorated fabrics, and eighteenth century garments. In January the Museum of Natural History exhibited blouses from many countries, among them England, Paris, and Italy.

The Art Alliance has held an exhibit of master craftsmen. When we speak of the work of the master craftsmen we think of furniture, copper and jewelry, wood work and metal work. In this exhibit, under the term master craftsmen's exhibit there were to be seen textiles,—batik, tie and dyed, and block printed. Among the prominent people who exhibited were Martha Ryther, Dorothea Warren O'Hara and the Tannahill Sisters. The exhibit also included jewelry, glassware, ceramic art, furniture by Katherine Hanson, and wood carving by Charles Prendergast.

Similar in nature to this exhibit of master craftsmen there has been held, at the Carnegie Galleries in Pittsburgh, an exhibit of needle work by the Phoebe Brashear Club. This club includes 800 teachers of the Pittsburgh schools, who are not members of the club until they have been away to an art school for study. The money for this advanced study is loaned by the club. The most recent exhibit included Assyrian, Russian, Grecian, and Balkan needlework from the homes of Pittsburgh. This work could be that made in the Old Country and now an heirloom in the family, or it might be made by people who have come to this country recently and possess the skill to make the pieces. The purpose was to get these people to realize that America is interested in their native art. This emphasis upon the textile and needlework of the foreign countries has not been confined to the art clubs, such as the Phoebe Brashear Club; it has also been given wide publicity this winter in Hero Land, the bazaar held at Grand Central Palace, New York City. Here were found, in the various booths, people in European peasant costumes exhibiting textiles and needlework from the peasantry of

many countries: Ireland, Scotland, Wales, Belgium, Holland, France, Portugal, Sweden, Poland, Russia, Roumania, Persia, and Japan.

In addition to the work being done by the museums and galleries, we find the commercial organizations of America holding conventions in which they are emphasizing the spirit of American design.

The dressmakers of the United States meet in an organization, called the Fashion Art League. Here again we have the coöperation of art and industry. At the December meeting in Chicago, Mr. Geo. W. Eggers, who is the Director of the Chicago Art Institute, delivered one of the principal addresses, the subject of which was "How Style Changed in Italian Paintings." Another speaker, Lucy Silk, Director of Art in the Public Schools of Chicago, talked to these dressmakers of America on the art of the public school—its aim and how it ought to meet the demands of dressmakers, and to make better dressed men and women.

The Dress and Skirt Designers' Association is another commercial organization which is emphasizing American designs. At a meeting of this Association there were forty-nine model skirts shown that were American designed, American manufactured, and American made. The material was made in this country, the skirts were made in this country, the designs were made in this country. Formerly these associations have always advertised Parisian models, now this is their advertisement: "American designed, American manufactured, American made," and they are actually living up to their advertisements.

The school men must be included in the list of people who are promoting this union of art and industry in America. Trade schools are contributing their fund of knowledge to the public schools and the public schools are contributing their teaching methods to the trades and industry schools. In Philadelphia we find a union of trade and public schools being planned to prepare for a possible exodus of foreign labor after the war. In all large department stores and in the various trades and industries, classes are organized for the purpose of educating the workers to render the most efficient service.

There are many other factors contributing to this spirit of Americanism in design and industry but the above brief summary of the efforts being made by the designers and manufacturers to use American designs and American materials proves that the two most powerful agencies in our country are united in their efforts to develop in the minds of the consumers an appreciation of the real value, artistic and economic, of American made clothing.

A QUICK METHOD OF CALCULATING FOOD VALUES¹

CAROLINE L. HUNT

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The purpose of this paper is to suggest a quick method for estimating, rather than figuring exactly, the protein and fuel values of meals, days' rations, and other combinations of food materials. Our thoughts, to be sure, are just now on other matters than total protein and calories, for body-regulating substances—still very unsatisfactorily named—and amino acids are demanding a large part of our attention. An understanding of these new elements in the diet, however, rests upon an understanding of the factors which have always been taken into consideration and the very multiplication of interests makes it desirable to have a quick method of disposing of the old.

The method outlined here, like all other short cuts, is more useful for some purposes than for others. In this case, however, the scheme is most reliable and therefore most useful where it is most needed, i.e. in calculating protein and calories in a long list of foods. To calculate the food value of a meal, even if it is served to one hundred people, is a comparatively simple matter for only a small number of food materials is involved. The calculation of the food value of a week's ration or twenty-one meals, even for one or two people, on the other hand, is a complicated matter for it usually contains many different foods.

The plan is most accurate when followed in connection with a varied diet and least accurate in connection with a monotonous diet. Here again, however, the diet which it does not calculate very accurately is the one which is comparatively easy to figure out by the old method.

Finally it is most convenient when the foods purchased are recorded as they come into the house in accordance with the classification here used. This involves some changes in the ordinary arrangement of the household account book. For example, the grouping of butter, cream, cheese, and milk as "dairy products" has more significance to the producer than to the consumer, for some are important sources of protein and others of fat, a fact which must be taken into consideration when foods are to be classified according to their nutritive value.

According to the plan here outlined, foods are arranged at the time of

¹Presented at the Tenth Annual Meeting of the American Home Economics Association, Atlantic City, March 2, 1918.

their purchase into the following groups and sub-groups, and protein and calories are determined by means of average values for each group.

GROUP I. VEGETABLES AND FRUITS

Sub-Group I-A. Fresh and canned vegetables and fruits

Record the weights as purchased of all fresh vegetables, including potatoes and other tubers, salad vegetables, greens, etc.; all fresh fruits, including berries and melons; and all canned vegetables and fruits except those to which much sugar has been added. The last mentioned are really sweets and should be classed in Group IV.

Sub-Group I-B. Dried fruits and vegetables

Record the weights as purchased of all dried fruits (raisins, dates, figs, prunes, apples, apricots, etc.) and all dried vegetables except soy beans.

Multiply the weight of the dried vegetables and fruits by 6 to get the approximate weight before drying, and add to the weight of the fresh fruits and vegetables. To determine fuel value multiply the total number of pounds by 250. To determine protein divide the total number of pounds by 70.

GROUP II. PROTEIN-RICH FOODS

Sub-Group II-A. The less watery

Record the weights as purchased of all meats (except salt pork and bacon), poultry, game, fish, canned sea foods, eggs, cheese of all kinds, including cottage cheese purchased as such, peanuts, peanut butter and dried soy beans.

Sub-Group II-B. The more watery

Record the weights of milk, also skim milk, and buttermilk, if purchased as such, oysters, fresh or canned, and other sea foods unless canned.

Divide weight of milk, etc., by 4 and add to the weight of meat, fish, etc., in II-A. To determine fuel value multiply the total number of pounds by 900. To determine protein divide the total number of pounds by 7.

GROUP III. CEREALS, BREAD AND OTHER BAKERY GOODS

Sub-Group III-A. Dry cereals

Record the weights of all flours, meals, dry breakfast foods, rice, hominy, samp, buckwheat, macaroni, tapioca, pop-corn, crackers, etc.

Sub-Group III-B. Bread and other bakery goods

Record below the weights of all bread, rolls, pies, doughnuts, cake, cookies, except the candy-like kinds that are purchased as such and not made at home. Chestnuts as purchased belong in this group.

Take three-fourths of the weight of the bakery goods which represents roughly the amount of cereal or similar substance they contain and add to the weight of the dry cereals, etc., in III-A. To determine protein divide total number of pounds by 9. To determine fuel value multiply total number of pounds by 1600.

GROUP IV. SWEETS

Sub-Group IV-A. Sugar

Record the weights of all sugars; granulated, pulverized, lump, brown, maple, etc.

Sub-Group IV-B. Sirups, jellies, candies, etc.

Record the weights of sirups, molasses, honey, jam, jelly, preserves, candy, and candy-like cakes and cookies.

Take three-fourths of the weight of sirups, etc. which represents roughly the amount of sugar they contain, and add to the weight of the sugars in IV-A. To determine fuel value multiply the total number of pounds by 1800. There is practically no protein in any of these foods.

GROUP V. FATTY FOODS

Sub-Group V-A. Butter and other fats

Record the weights of butter, butter substitutes, lard, suet, oil, all cooking fats purchased as such, bacon, salt pork, shelled nuts, except peanuts and chestnuts.

Sub-Group V-B. Cream, ice cream, etc.

Record the weights of cream, ice cream, unsweetened chocolate in the cake, and such foods as nuts in shell, which have a high percentage of fat, but not so high as the foods in V-A.

Take one-fourth of the weight of the cream, etc. and add to the weight of the butter, etc. in V-A. To determine the protein divide the total number of pounds by 30. To determine the fuel value multiply the total number of pounds by 3400.

One example will serve to show how the plan works.

On page 117 of the first edition of Mrs. Richards' "Cost of Food"² there is a carefully calculated 99-day dietary study. The results show 94 grams of protein and 2915 calories per day. The following plan shows how the food value of the sixty or seventy materials involved can be calculated by groups.

GROUP I. VEGETABLES AND FRUITS

Sub-Group I-A, Fresh and Canned

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Beets.....	3	8
Carrots.....	2	4
Lettuce.....	8	0
Onions.....	2	8
Peas, canned.....	4	0
Potatoes.....	27	3
Tomatoes, canned.....	5	0
Turnips.....	0	9
Apples.....	9	2
Bananas.....	2	0
Cranberries.....	1	8
Lemons.....	3	0
Oranges.....	20	0
Total, fresh and canned ...	88	10
Six times the weight of dry vegetables and fruits.....	40	8
Total fruits and vegetables.	129	2

Sub-Group I-B, Dried or dehydrated

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Apricots.....	0	12
Currants.....	0	2.5
Dates.....	2	4.5
Prunes.....	0	8
Raisins.....	0	5
Beans.....	0	11
Beans, Lima.....	0	13
Peas.....	1	4
Total, dried.....	6	12

Protein = $129.125 \div 70$ or 1.845 pounds. Fuel value = 129.125×250 or 32,281 calories.

² The Cost of Food: A Study in Diets. Ellen H. Richards. New York, John Wiley & Sons.

GROUP II. PROTEIN-RICH FOODS

Sub-Group II-A, The less watery

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Fowl.....	14	2
Beef shank.....	9	
Beef, rib roll.....	7	
Hamburg steak.....	3	6
Veal, loin.....	4	10
Lamb, leg.....	9	1
Sausage.....	2	
Beef, dried.....	1	2
Haddock.....	8	
Cod, fresh.....	4	4
Cod, salt.....	0	14
Peanuts.....	1	11
Eggs (5 dozen).....	7	8
Cheese.....	0	5
Total.....	72	15
One-fourth weight of milk....	19	4
Total protein-rich foods....	92	3

Sub-Group II-B, The more watery

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Milk (77 pints).....	77	

92 lbs. 3 oz. = 92.1875 lbs.

Protein = $92.1875 \div 7$ or 13.7 pounds.

Fuel value = 92.1875×900 or 82,968 calories

GROUP III. CEREALS AND THEIR PRODUCTS

Sub-Group III-A, Dry cereals

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Oatmeal.....	0	9
Pettijohn.....	0	9
Wheat germs.....	0	9
Vitos.....	0	9
Cream of wheat.....	0	9
Shredded wheat.....	0	5
Ralston's.....	0	9
Hominy.....	1	0
Rice.....	0	8
Wheat flour, bread.....	27	4
Wheat flour, pastry.....	4	10
Corn meal.....	3	11
Graham meal.....		12
Crackers, Boston.....	0	14
Saltines.....	1	15
Total cereals.....	44	15

Sub-Group III-B, Bread and other bakery goods

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces

No entries

44 lbs. 15 oz. = 44.3125 lbs.

Protein = $44.312 \div 9$ or 4.924 pounds.

Fuel value = 44.312×1600 or 70,900 calories.

GROUP IV. SWEETS

Sub-Group IV-A, The less watery

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Sugar, granulated	15	9
Sugar, powdered.....	0	5
Sugar, lump.....	2	10
Total.....	18	8
Three-fourths wt. molasses..	3	
Total sweets.....	21	8

Sub-Group IV-B, The more watery

KINDS	WEIGHT AS PURCHASED	
	Pounds	Ounces
Molasses.....	4	

21 lbs. 8 oz. = 21.5 pounds.

Fuel value = $21.5 \times 1800 = 38,700$ calories.

GROUP V. FATTY FOODS

Sub-Group V-A, The more fatty

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Butter.. ..	12	4
Oil, olive.....	1	0
Lard.....	0	7
Suet.....	0	7
Salt pork.....	0	7
Bacon.....	1	0
Walnuts, shelled	0	9
Total.....	16	2
One-fourth wt. less fatty foods	0	9.5
Total fatty foods.....	16	11.5

Sub-Group V-B, The less fatty

KINDS	WEIGHTS AS PURCHASED	
	Pounds	Ounces
Cream, 1 quart.....	2	0
Chocolate.....	0	6
Total.....	2	6

16 lbs. 11.5 oz. = 16.719 lbs.

Protein = $16.719 \div 30$ or .5573 pounds.Fuel value = 16.719×3400 or 56,845 calories.*Summary*

	PROTEIN	FUEL VALUE
	pounds	calories
Group I.....	1.845	32,281
Group II.....	13.170	82,968
Group III.....	4.924	70,900
Group IV.....		38,700
Group V.....	0.557	56,845
For 99 days.....	20.496	281,694
For 1 day.....	0.207 (94 gms.)	2,844

The protein is the same as when calculated item by item; the fuel differs only by 2.5 per cent.

In the JOURNAL for March, 1918, there is a report of a very careful and valuable dietary study made at Vassar College. The food per person per day is 113 grams of protein and 3072 calories. The quick method would be no substitute for this careful study, but a comparison will show that it is sufficiently accurate for ordinary checking-up purposes. By the quick method the protein is estimated to be 106 grams per day and the calories 2995, the errors being 6 and 2.5 per cent respectively.

In this case the difference between the two computations in protein comes largely in the cereal group. The rolls used at Vassar were made in the college bakery and, fortunately for those who ate them, contain 13 per cent of protein, which is more than the average protein in wheat flour. It is probable that skim milk was used in their preparation. In the average household, the rolls, if they had been purchased, would probably have contained far less protein. If they had been made at home, the skim milk used would have been figured into Group II and would have raised the total protein to about 108 grams. This may be a good place in which to say that the purpose in selecting the factors for the various groups is to bring the final result too low rather than too high, in order that no inadequate diet shall appear adequate.

A 13-day dietary of my own gives almost the same results for calories when figured by groups and item by item, i.e., 2652 and 2659. The protein is 4 grams lower by groups. This is to be accounted for chiefly by the fact that during the two weeks of the study little butter was used and a comparatively large amount of bacon. The factor for determining protein in Group V is based on the usual proportions between these two foods, and therefore gives too low a result for protein when used on a combination of foods in which butter is displaced to a considerable extent by a fat containing more protein as in army rations, for example. This suggests that a person who understands food values can easily make slight adjustments in the figures to suit exceptional cases or cases in which the number of items in a group is so small that their average is not representative of the members of that group in common use.

No apology is needed, however, even for a discrepancy of 8 or 10 per cent. The fact is that after a person has computed a dietary item by item there always lingers over him a doubt as to its accuracy. He knows that a large error may have been introduced through the selection of the wrong percentage compositions. In the quick method the error is probably little greater and the time required for computation is far less. The time needed will be less still when we have a new account book with the foods arranged in groups according to the plan here outlined.

FOR THE HOMEMAKER

MODIFYING YOUR COOK BOOK TO MEET PRESENT CONDITIONS

ALICE BRADLEY

Miss Farmer's School of Cookery, Boston

Every good housekeeper has a favorite cook book and familiar recipes that she is loath to give up, even though anxious do to her part in conserving food stuffs. Now, although war conditions are causing hundreds of new recipes to be circulated, we turn the familiar pages and find it possible to continue to use our standard cook book and still save wheat, meat, sugar, and fat for our soldiers and the allies. This is done by our selection of dishes, by changing the formulas to include "substitutes," or by eliminating part or all of the fat or sugar.

Let us see how we may make our wartime changes.

Those people who are giving up wheat entirely will pass by the yeast breads as no really satisfactory results come from making raised breads entirely of wheat substitutes. Excellent Boston or New England Brown Bread can be made using ground rolled oats for Graham flour and barley flour for rye meal.

Biscuits, muffins, griddle cakes, and waffles can be made very well without wheat. Barley flour alone or combined with 1 part corn-starch or rice flour to 3 parts barley flour can be used for biscuits, muffins, or popovers. Rolled oats, put twice through the food chopper, may be used instead of white flour, allowing $1\frac{1}{2}$ cups for each cup of flour called for.¹ In corn cakes and muffins barley flour may replace the white flour that is used with the corn meal. Muffin mixtures may be baked in bread pans and sliced when cold. Buckwheat can replace flour in griddle cakes and waffles if more liquid is added.

Recipes for mush made of rolled oats, oatmeal, corn meal, hominy, and rice may all be utilized. Such cereals may be eaten more frequently and in larger quantities than formerly.

¹ This differs from the amount given in the April JOURNAL as determined in the Experimental Laboratory of the Food Administration and the Dept. of Agr. Other samples of rolled oats purchased a few weeks later gave results that agree with the author's.

Turkish and Russian Pilaf make excellent luncheon or supper dishes. Samp may be used in recipes calling for macaroni. Noodles made of corn flour and no wheat at all are delicious as macaroni substitutes.

Corn flour gives good results as thickening in white sauce or cream soups; barley, buckwheat, or oatflour may be used in brown or tomato soups or gravies. Cornstarch may also be used, one-third less being required than the amount of flour called for in the recipe.

As a substitute for bread and muffins both white and sweet potatoes may be used. Many recipes for preparing them will be found in the cook book. Make the potato popular by serving it in a variety of ways and two or three times a day.

In steamed and baked puddings requiring flour, barley flour is probably the cheapest and most satisfactory substitute although buckwheat or ground rolled oats may be used instead.

One cannot patriotically have pastry as light and rich as formerly, but tempting, digestible crust for pies can be made with barley flour instead of white flour, or with ground rolled oats and very little shortening.

In ginger breads, cookies, and cakes many formulas are possible when making them without wheat.

In sponge cakes $\frac{1}{2}$ cup potato flour may replace 1 cup white flour with excellent results.

One hundred per cent rice, corn, or potato flour is good in cookies and gingerbread. Use enough to make them stiff enough to roll out.

Mashed potato may be used as a substitute in biscuits, muffins, and cakes. One cupful will replace about $\frac{1}{2}$ cup of flour and $\frac{1}{2}$ cup of liquid which must be omitted from the recipe.

Corn meal, finely ground, may replace all or part of the flour in gingerbread and molasses cookies if desired.

More meat substitute dishes are found in even the old cook books than people realize until they stop to think what a variety of foods come under that head. There are whole chapters on eggs, fish, chowders, and cream soups without stock, there are bean and pea dishes, while many of the dishes formerly served as entrees are sufficient for the main part of a meal. Here also are recipes showing how leftovers may be satisfactorily utilized.

If you limit your consumption of fat to $\frac{3}{4}$ of a pound per week, or even 1 pound per person you will have to make many changes in your favorite recipes but will not need to discard them altogether. In many

recipes calling for 2 tablespoons of butter 1 tablespoon or an equal amount of oleomargarine, cooking oil, or dripping may be used instead, to save fat.

Rich sauces and cakes will have to be given up entirely until after the war instead of being changed, unless the amount of fat needed can be saved from the weekly allowance. Deep fat frying recipes should not be followed as written. Croquettes may be coated with crumbs mixed with 1 or 2 tablespoons of melted fat, and baked in the oven, as that requires very much less fat than is necessary for deep frying.

To save sugar, the amount called for can be reduced without harm in almost all recipes. In light colored muffins substitute light colored corn syrup; in dark muffins use molasses; on fried mush, waffles, and griddle cakes use maple syrup (pure or imitation), honey, hot molasses, or marmalade.

In desserts, pudding sauces, pie fillings, cakes and cookies, use half the amount of sugar called for with an equal amount of corn syrup. Use sugar in cooking only when it can be saved from the allowance of 3 pounds or less per person per month. Many cakes and desserts made with molasses will be found in your cook book. Try a maple sugar frosting when you do make cake or use honey instead of sugar for a boiled frosting.

The cook books should be used to suggest greater variety in the ways of serving vegetables. During the summer, dinners with several vegetables and no meat or fish may be frequently provided. The protein will be supplied by beans or peas or by milk made into white sauce to go with the vegetable. Use the water in which vegetables are cooked for soups and gravies to conserve mineral salts.

The salad chapters also require only slight changes. Peanut, cotton seed, or corn oil may take the place of olive oil in the salad dressings, but even to these we should help ourselves sparingly at table that precious oil may not be wasted on the plates. Many salads make excellent substitutes for desserts and others can replace meats. Still others will satisfy the appetite and take the place of bread and butter.

Excellent recipes for serving and preserving fruits will be found. These may take the place of wheat desserts. Home canned jellies, fruits, and vegetables may replace the imported ones called for in various recipes.

Look through the reading matter of the cook book and learn how to fry out fat and how to use up leftovers of all kinds that waste may be prevented.

Following are changes that would be made in the recipes for a simple dinner menu.

Cream Soup. Oleomargarine may take the place of butter and 1 tablespoon used instead of 2, and 2 tablespoons corn flour in place of 2 tablespoons wheat flour. Use vegetable stock instead of water when convenient.

Baked stuffed fish. Use dry wheatless muffin crumbs in place of cracker crumbs in stuffing; use oleomargarine in place of butter; use fat left in baking pan, instead of butter, to make a sauce; save the head and bones of the fish for fish stock.

Mashed potatoes. Follow recipe but cook potatoes in jackets to conserve mineral salts.

Green peas. Save water in which they are cooked and add it to a cream soup, stew, or gravy in place of plain water.

Bread. In place of serving white bread use a "Quick Bread."

Cheese and currant salad. Home made buttermilk or sour milk cheese may be used in place of cream cheese, and currant jelly in place of Bar-le-Duc currants.

French dressing. Follow the rule as given, using if necessary a cheaper vegetable oil to replace part or all of the olive oil.

Cottage pudding. Use $\frac{1}{3}$ cup sugar and $\frac{1}{3}$ cup corn syrup in place of $\frac{2}{3}$ cup of sugar; and $2\frac{1}{4}$ cups barley flour in place of $2\frac{1}{4}$ cups white flour; use other ingredients as called for.

Chocolate sauce. Use $\frac{1}{2}$ cup corn syrup and 2 tablespoons sugar in place of 1 cup sugar.

The housekeepers who are accustomed to success because they have learned how to follow exactly the recipes in reliable cook books may make all these changes and yet obtain satisfactory results.

Any food consumed over and above the needs of the human body is wasted.

A COMPARISON BETWEEN CANNING AND DRYING

EDITH ALLEN AND JENOISE SHORT

The following experiment was made last summer to answer the question that many housekeepers are asking this spring: "Is it more profitable to can or dry?" The cost of canning equal weights of six common vegetables and five fruits was compared with the cost of drying them. A record was made of the time required for the preparation, the labor involved, the cost of gas consumed, the cost of containers and the weight and the volume of the finished products.

A maxim well known to good housekeepers is that any oven is giving most efficient service when it is filled to capacity. For this reason the cost of drying the weights of material used in this experiment was based upon the amount of fuel consumed by an oven of average household size, containing three shelves each 16-inches square filled to capacity. The cost of heating a 12 quart pail, the size of container that best holds three 1-quart jars, and is most convenient for canning food in small quantities, was the basis for calculating the cost of canning.

After drying, the food was soaked and cooked to see how nearly it approached the volume of the canned product and to determine its flavor and appearance. A portion of the food prepared in this way was placed on the counters of a certain cafeteria without any indication that it was not an ordinary canned product. All patrons who selected and ate the cooked dried food were requested to give an unbiased opinion of what they had eaten. The majority of patrons failed to recognize any difference from their usual dish and all praised both flavor and appearance.

It matters little how much we approve theoretically of drying unless a palatable product is the result, and people learn to eat the dried food; otherwise this method of conserving food cannot be said to be successful.

Both vegetables and fruits, with the exception of berries and cherries, were subjected before drying to a preliminary cooking of from one to fifteen minutes in boiling water or live steam. The carrots were cut in slices of from $\frac{1}{8}$ to $\frac{1}{4}$ inch in thickness and steamed eight minutes. The corn was boiled, cold dipped, and cut from the cob. The spinach was steamed for five minutes. The apples were cut in $\frac{1}{8}$ inch slices and steamed three minutes, and the peas were shelled and steamed for five minutes.

The canning of vegetables and fruits was carried out according to the directions given in the United States Department of Agriculture Farmer's Bulletin 839, Home Canning by the One Period Cold Pack-Method.

A comparison of the finished products as foods proved very interesting. Apples, corn, carrots, huckleberries and raspberries make fully as good a product when dried as when canned, and may be more easily stored since they use less space. Dried cherries and dried tomatoes are an entirely different product from the canned, but they are very palatable and well worth drying for special uses. The cherries are excellent for puddings and the tomatoes may be used in scalloped dishes made from rice or macaroni, and for flavoring soups and stews. If young peas are dried they are preferable, when cooked, to the ordinary canned product. Peaches change in flavor and though very good are not equal to the canned product.

It is possible to dry string beans or spinach so that they compare favorably with the canned product, but it takes a great deal of skill. In consequence there is apt to be considerable waste in drying them. The odor of cooking dried string beans or spinach is not particularly appetizing, though when well dried and cooked they have nearly the same flavor as the canned ones.

There is little difference in the labor involved in drying and canning. The attention which the material requires during the process of drying is off-set by the labor of preparing the jars and packing the product to be canned.

The containers for the dried product are very light, weighing from 1 to 2 ounces each, while jars to contain the same amount of material would weigh from 1 to 1½ pounds. The paper containers have also the advantage over glass jars of being unbreakable and less expensive. The material when canned weighs five to ten times as much as when dried. The volume varies even more than this.

It is practical for the housewife to both can and dry, doing neither one to the exclusion of the other. Each process has certain advantages, as a rapid survey of the table will show.

There is especial need for experience in handling the dried products and preparing appetizing dishes from them. While we are learning more about how to dry, more experimental work should be done on cooking the dried product.

Results of canning and drying experiment

PRODUCT		QUANTITY	WEIGHT AFTER PREPARA- TION		COST OF GAS	NET WEIGHT		VOL- UME
			lbs.	oz.		lbs.	oz.	pints
Tomatoes.....	Dried	12	2	6	\$0.019		2 $\frac{3}{4}$	$\frac{1}{2}$
	Canned	12	2	6	.004	2	6 $\frac{1}{2}$	2
String beans.....	Dried	2 quarts	1	6	.017		3	1
	Canned	2 quarts	1	6	.0075	2		2
Corn	Dried	18 ears	2	10	.012		8	1
	Canned	18 ears	2	10	.0092	2	10	2
Peas, unshelled	Dried	3 quarts	1	2	.017		3 $\frac{1}{2}$	$\frac{1}{2}$
	Canned	3 quarts	1	2	.01	2		2
Carrots.....	Dried	11	2		.017		4	$\frac{3}{4}$
	Canned	11	2		.0075	2	3	2
Spinach.....	Dried	7 quarts	5		.014		3	2
	Canned	7 quarts	5		.0101	1	8	2
Apples.....	Dried	1 $\frac{1}{2}$ quarts	1	3	.012		3 $\frac{1}{2}$	$\frac{1}{2}$
	Canned	1 $\frac{1}{2}$ quarts	1	3	.005	1	2	2
Peaches.....	Dried	1 $\frac{1}{2}$ quarts	1	12	.016		5 $\frac{1}{2}$	$\frac{3}{4}$
	Canned	1 $\frac{1}{2}$ quarts	1	12	.006	2		2
Raspberries.....	Dried	1 quart	1		.013		2	$\frac{1}{2}$
	Canned	1 quart	1		.0022	1	1	1
Cherries.....	Dried	$\frac{1}{2}$ basket	2		.017		7	$\frac{3}{4}$
	Canned	$\frac{1}{2}$ basket	2		.004	2		2
Huckleberries.....	Dried	1 $\frac{1}{2}$ quarts	2		.016		5 $\frac{1}{2}$	$\frac{1}{2}$
	Canned	1 $\frac{1}{2}$ quarts	2		.022	2		2

Be a Food Controller in your own home and count yourself fortunate that you have food to control.

TIME REQUIRED FOR HOUSEWORK IN A FAMILY OF FIVE
WITH SMALL CHILDREN

MARION WOODBURY

The author of this article writes:

"The statement was made in a recent 'short course' that by systematizing her work any woman could be done by 10.30 every day. I take exception to this. In a family of adults or one with older children this might be possible, but there are many families in which household and nursery duties must be performed by one person. The following schedule is my attempt at a solution of this problem."—THE EDITOR.

The following schedule of daily and weekly routine work was made out by the mother of the family, who does most of the work. The family consists of father, mother, child of four years, and baby of nine months, with a college student who works for room and board. The house was built by the occupant and is compact and convenient; it contains a large living room, small play-room, a dining room, and a kitchen on the first floor, four moderate sized bedrooms and a bath on the second, with small staircase halls.

As shown by the table, the routine work, cooking and care of children are performed by the housewife. The student dusts and washes dishes. He also sweeps the entire house once a week, while the washing and ironing are done in the house by a laundress.

All operations have been carefully studied with a view to performing them as efficiently as possible. When small children are to be cared for, great efficiency is sometimes difficult; interruptions will occur and sudden changes of plan are often necessary. In fact, the whole routine must be based upon their hours for eating and sleeping and must be changed when these change. In so far as the time required for any one operation is concerned, this schedule is accurate; the order in which these are performed varies considerably.

No more time is given to the personal care of the children than is necessary to maintain the present-day standards of hygiene and training. More time could well be used in directed play, elementary instruction, and outings if it were available.

It is impossible to estimate what proportion of the time occupied in weekly work is due to the presence of children in the house. One can simply say "a family of five" and be sure that the children are responsi-

ble for more, rather than less, than a proportionate share in the washing and sweeping.

The afternoon program varies somewhat. Under present conditions marketing is best done in person. Through coöperation with a neighbor one trip to town suffices for the week. Coöperative cooking has also proved a time-saver—only such articles as pies, cakes, quick breads, gelatin salads, and desserts being attempted.

Since the man of the house holds an official position in a University, many calls must be made and received and considerable simple entertaining done. The afternoon given up to Red Cross work has in part supplanted these duties with the whole community. In normal times probably one afternoon a week would be spent in social activities.

A good deal of sewing and some writing (accounts, recipes, etc). must be done in the evening. It has been found impossible to leave the evenings entirely free.

A woman student is employed when it is necessary for the housewife to be out and also occasionally for plain sewing. Her time would average about ten hours weekly.

Work done by housewife

Hour	Hrs. Min.	HOUSEHOLD DUTIES	Hrs. Min.	NURSERY DUTIES	Hrs. Min.	PERSONAL
6.15 to 6.45			10	Feed baby and dry	15	Bathe and dress
			5	Bathe and dress child		
6.45	15	Prepare breakfast				
7.00					30	Eat breakfast
7.30	30	Clear table, put away food, look over larder, plan meals, order from stores, get out supplies for day				
8.00			30	Wash diapers, fold dry ones, prepare bath		
8.30			30	Bathe baby and give child oral number lesson		
9.00 to 9.30	15	Make beds and tidy bed rooms	15	Feed baby, tidy bath-room, rinse night clothes, put baby to nap		

Work done by housewife—Continued

HOUR	HRS. MIN.	HOUSEHOLD DUTIES	HRS. MIN.	NURSERY DUTIES	HRS. MIN.	PERSONAL
9.30	15		15			
to 10.00		This 30 minutes is allowed to take care of phone calls and various interruptions, also personal care of children during entire forenoon				
10.00			30	Prepare modified milk, orange juice, for 1 day, gruel or custard for 2 days and give child reading lesson while working		
10.30	45	Prepare (1) luncheon dish; (2) soup, salad, or dessert; (3) materials for quick bread; (4) meat (or substitute) and vegetables and dessert for evening dinner				
11.15			15	Take baby from nap, dry, and feed orange juice		
11.30 to 12.00	15	Prepare luncheon	15	Prepare separate meal for child: meat or egg, vegetable, bread and butter, fruit or dessert		
12.00					30	Eat luncheon
12.30 to 1.30	30	Clear table, stack dishes for washing, put away food. Tidy first floor, water plants	30	Feed baby gruel and custard, warm milk and feed in bottle. Settle both children for naps.		
1.30					1-0	Rest or read except when going out.
2.30 to 3.00			15	Dress children	15	Dress.

Work done by housewife—Continued

HOURL	HRS. MIN.	HOUSEHOLD DUTIES	HRS. MIN.	NURSERY DUTIES	HRS. MIN.	PERSONAL
3.00	1-30	Special tasks each day. Monday. Change bed, bathroom, table and kitchen linen and put up washing; do accounts and household desk work Tuesday. Sew for children and house Wednesday. Red Cross work 1.00-5.00 Thursday. Put away clean clothes and mend. French lesson while sewing Friday. Prepare rooms for cleaning, market for 2 families 1.00-5.00 Saturday. Bake				
4.30			30	Feed baby and put to bed		
5.00	30	Prepare dinner				
5.30					30	Eat dinner
6.00	15	Prepare cereal and fruit, set table for breakfast				
6.15			45	Read to child and put to bed		
Total	5-0		5-0		3-0	

Work done by other persons

	HRS. MIN.	CLEANING, DISH WASHING, ETC.	HELPER
	15	Dusting and tidying of play room and own dresser Dusting of tables and setting of table for luncheon	4 year old child
	30	Dusting of floors and furniture	Student help
	1-30	Dish washing and tidying kitchen	Student help
Total	2-15		

Work done by other persons—Continued

	HRS. MIN.	WEEKLY WORK	HELPER
	5-0 4-0 3-0	Washing Ironing Miscellaneous cleaning }	Laundress 1½ days per week
	7-0 2-0	Weekly sweeping and cleaning of first and second floor rooms and cellar Floor polishing, etc.	
Total	21-0	or 3 hours daily	

Summary

	Daily work	<i>Hours daily</i>	<i>Total hours</i>
	House.....	3-45	<i>daily</i>
	Cooking.....	2- 0	
	Children.....	5- 0	
		10-45	10-45
	Weekly work	<i>Hours weekly</i>	
	Washing.....	9- 0	
	Cleaning.....	12- 0	
	Cooking.....	1-30	
	Miscellaneous afternoon work.....	8-30	
	Outside work.....	4- 0	
		35- 0	5- 0

SUBJECT TO CHANGE

"Conservation of food must be adjusted to meet necessities from time to time, for neither production nor Allied demands are constant factors, nor can any of these factors be anticipated for long periods in advance in the disturbed conditions in which we at present live."—U. S. Food Administration.

EDITORIAL

The Children's Year. It was once said of a meeting of the American Home Economics Association that during the whole session no mention was made of the home, of the child, or of the community. That must have been long ago, for today no home economics worker could, if she would, be so oblivious to the needs of the world as even temporarily to put away from her thoughts or her speech the home for which she is working, or the community it serves, or the child whose up-bringing is its main purpose. Today especial interest centers upon the child, both because of the inevitable necessity of caring for child welfare in wartime, a necessity made evident by the great attention given to legislation for children and other work in their interest by the warring nations, and because our own Children's Bureau has depicted so plainly the needs of children, and shown so clearly methods that may be used toward protecting and safeguarding them, that the whole country is convicted of its past failures and aroused to undertake with its best effort the needed work.

Children's Year has entered upon its second month, with about half the states organized and having some form of work under way. The District of Columbia may be taken as a fair example of the way in which the work of Children's Year is being carried out. It has been organized under an executive committee composed of the executive chairman, the officers, the chairmen of five general committees, and two members at large. These sub-committees have charge of practically all fields of work, for children of all ages. The work is grouped under protection of infants, mothers, and young children; home care of older children; child labor and education; recreation; and children in need of special care.

The first committee is now conducting the weighing and measuring test throughout the city and its suburbs, and it is hoped that the spirit and interest thus aroused will give the needed impetus to the work which should follow logically upon it, namely, the further examination of those children whose weight and height are below the average, and the attempt to put as many of these children as possible into better condition. More than 9,000 children have been registered and it is expected that the number will be increased to more than 10,000 before the test is finished, thus extending the test to about one quarter of the children of the given ages in the city. In addition to this, the committee has arranged for the examination by physicians and nurses of all children whom the test shows to be below the average.

The creation of a Division of Child Welfare in the Department of Health of Washington is among the great objects to be accomplished. Congress has been asked to give \$15,000 for this purpose, and it will be one of the functions of the Children's Year Committee to push this bill in Congress. In case the bill passes, Dr. William C. Woodward, Health Officer of the District, will probably take over the administrative offices of the Children's Year, thus relieving the committee of the necessity of raising money to pay the overhead charges. The work of the Committee will then be directed to the creation of public sentiment and the educating of public opinion to take advantage of the opportunities offered to the community, through the Children's Year campaign, for making the Capital city the model city with respect to public protection of child life.

The next annual meeting of the American Home Economics Association will be held in Chicago, June 27 to June 29, at the University of Chicago.

THE QUESTION BOX

Barley flours. In reply to a question about barley flours, Miss Daniels writes:

Barley flours differ among themselves. A recipe which is successful with one flour is not in all cases successful with others.

The early barley flour put on the market seemed to take a smaller proportion of liquid than wheat. This, however, we have not found to be true of the flours which we have been using during the last four or five months. Because of the increased shortage of wheat, millers have used a larger proportion of the grain for the barley flour. One company in Wisconsin began by milling 56 per cent of the pedigreed grain which contained about 14 per cent of protein. They are now using barley containing a smaller proportion of protein and are milling a much higher percentage of the grain.

We have been busy checking our early work with our later work and our new pamphlet¹ will contain the proportions which hold for the products of three large mills.² On these, we have done more work than on

¹ Twelve Ways to Use Barley—Revised edition.

² Dodge-Hooker, Washburn-Crosby, Quaker Oat Company.

the other flours. These we have found can be used in the same proportions as wheat flour in all cases except yeast breads. The fifty-fifty proportion makes an acceptable bread. When using the barley for yeast bread, we get more satisfactory results when we add a small amount of cooking soda to the barley flour. One teaspoonful with six cups of barley flour is a fair proportion. The barley flour as milled now contains considerable acid. This together with the acid produced by the yeast produces a loaf which is not unpalatable, but rather unusual, the acid flavor being more pronounced as the bread stands. This slight acid taste is not at all evident in mixtures made of baking powder or sour milk and cooking soda. Barley flour may be used in white sauces in the same proportion as white flour, the thickening qualities of the two flours being very similar.

Barley baking powder biscuits are satisfactory. One must roll them slightly thicker than when wheat flour is used and the mixture is somewhat softer. We use for these the same proportions of flour and liquid (by measure), as if white flour were used, but since there is no gluten formed in barley, the consistency is softer. Not knowing this, the housekeeper sometimes gets her biscuits too stiff.

If something could be done to standardize barley flour, it would help the housekeepers materially, as well as the bakers. Housekeepers are accustomed to a certain kind of wheat flour and they must acquire the same feel for barley mixtures. Having once learned how to handle a flour, they have better success if they always use that same flour. If the various barley products on the market were standardized, we could pay less attention to the brand.

A request has come for slides to be used as illustrative material in connection with the course in textiles, and also for pictures and slides illustrating equipment for household economics rooms.

Can anyone give information as to where such slides can be obtained?

An inquiry has come as to which method is found best by high school teachers—alternate days, semesters, or years, for sewing and cooking. Will any who have had experience with these different arrangements of work, and who believe that there is something more involved than an adjustment to convenience of program, send us their views as to the advantages and disadvantages of one as compared with the others?

COMMENT AND DISCUSSION

A COÖPERATIVE VENTURE

"One that consistently reports its set backs as well as its successes."

I like to send you a word about our coöperative ventures semi-occasionally. Our store has unfortunately been compelled to suspend its coöperative existence. We were doing better than ever before and our business had gotten up to \$120,000 a year, but in our earlier history poor management had impaired our capital and when it came to doing a much larger bulk of business it naturally demanded larger capital and the higher prices of everything made the stock on the shelves require a much larger investment. But the store, while it was right on the eve of success we all thought, had not yet thoroughly demonstrated this and the times were not propitious for raising \$5,000 or \$10,000 of new capital as we should have been obliged to do, and so Mr. Harris, who was our largest creditor, simply took over the business. It is going well, though it is no longer coöperative. It is administered in a broad, public-spirited way. Mr. Harris has just written a book on coöperation, "Coöperation the Hope of the Consumer," which has been published by Macmillan. We have at least a hundred thick and thin coöperators here and we are just biding our time for the present, hoping the chance will come soon to make some new start.

Our Coöperative Kitchen has for the second time moved into larger quarters, twice as large as the last, and has now one of the old boarding houses of the town, with thirty-five rooms, the largest place in town with the exception of the Montclair Hotel. Each move has meant the incurring of indebtedness for additional equipment and the slow cutting down of that indebtedness, then another expansion; but we seem able to run a boarding house with fair success, on an ever larger scale. Our assets are well over our liabilities, there does not seem any likelihood of larger quarters for years now, the demand for board is steady, and once all difficulties are solved in this line—they are almost solved now—we shall be free to develop our outside service as we have meant to do but have been delayed in doing by having to lay these other foundations.

EDGAR S. WIERS,
Montclair, N. J.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

The Household Budget. By JOHN B. LEEDS, 234 W. School Lane, Philadelphia Pa., 1917, pp. 246. \$1.50. By mail of the Journal, \$1.58.

The increasing number of books from specialists who have applied their knowledge to the solution of household problems shows a marked change in the evaluation of the work of the home. From no one is this new attitude more helpful than from the teacher of economics—the subject whose principles have been so frequently ignored in any discussion of household management.

Professor Leeds' convincing presentation of the economic value of the labor of the housewife, with his suggestion that purchasing commodities is an act of production rather than of consumption, is especially valuable today.

The book includes the report of a first hand investigation of the amount of time spent in house work; with an analysis of the results. A new arrangement of budget headings is useful and suggestive.

The analysis of the budgets of two groups of families whose incomes are respectively \$1800 and \$2000 a year is a distinct contribution to the literature of budget making, as the studies in the past have been largely confined to families with a bare living wage.

His conclusions are that although economists in general recognize household activities as productive, yet none of them give it the consideration that they give to the productive labor of men or to the labor of women in factories or business offices. He proves that if we are interested in the sum total of household and national income we must include the work of both men and women workers wherever it is done.

GERTRUDE VAN HOESEN,
University of Chicago.

Food Problems. By A. N. FARMER AND JANET RANKIN HUNTINGTON. Boston:

Ginn and Company, 1918, pp. 90. \$0.27. \$0.20 to boards, teachers, and schools.

This attractively arranged and carefully planned little volume in eighty odd pages offers some of the most constructive suggestions for educational work in connection with the campaign for food conservation that have yet been forthcoming.

It presents in eight chapters a series of food problems for the sixth, seventh, and eighth grades that are designed "not to teach arithmetic" but "to use arithmetic to teach the meaning, necessity, and practice of food conservation." In the introduction the authors state, "Through the use of arithmetic in solving these problems children will be impressed as they could not be in any other way with the immense and fundamental character of the food-conservation campaign." Nor do the authors limit their suggestions to the presentation of these facts through one school subject. In the very helpful section entitled "Suggestions to Teachers" correlation with other subjects is urged. The teacher is stimulated to keep in touch with and to do her part to remedy community conditions through the active interest of the children. Local markets are to be studied for current prices and conditions, that first-hand information may form the basis of the lessons. No claim is made that the information provided is exhaustive, but salient facts are clearly and concisely stated. A helpful list of bulletins giving more detailed facts is appended.

Those making use of the book should keep in touch, through their State Food Administrator, with the current information issued by the Food Administration in order to correct to date the facts relative to demands for food that are being made, supplies available, and recognized substitutes.

CARRIE ALBERTA LYFORD,
U. S. Bureau of Education.

Department Store Merchandise Manuals.

New York: The Ronald Press Company, 1917. \$1.25 a volume.

The Notion Department. By M. ATTIE SOUDER, pp. 160.

The Cotton and Linen Department. By Eliza B. Thompson, pp. 182.

A series of twenty-five merchandise manuals edited by Beulah E. Kennard, are now in preparation, and promise to be not only interesting but full of valuable practical information to all who are interested in textiles, clothing, and house furnishing.

To quote from the editor's preface 'This series is for the purpose of imparting definite and authentic information to salespeople who realize that to give satisfactory service to the customer, they must possess a thorough knowledge of the goods they sell, as well as a knowledge of how best to sell them.' The series will fill a two-fold purpose,—the preparation for better salesmanship, and more efficient and intelligent buying on the part of the consumer.

Five of these manuals are now on the market. The two listed above are more closely related to household arts than the others that deal with The Leather, The Jewelry, and The Stationery Departments.

The one on Notions is unique and most interesting. It is a small encyclopedia in itself, containing in the one small volume information which could be found only by consulting many volumes, while some of the material probably could not be found in books.

The prevalent idea that the Notion department is a heterogeneous collection of small articles having no relation to each other is overthrown when, in the introduction, the stock of this department is definitely classified under the following topics: (1) Sewing Tools and Supplies, (2) Dress Accessories and Findings, (3) Hair Goods, (4) Shoe Supplies, and (5) Sundries. Buttons are discussed in a separate manual. All of the important articles that would come under each of these five topics are included in lengthy discussions of each. In

some cases a brief history of the article is given to show the great improvement that has been made and to stimulate appreciation of the article as it is now on the market. The steps in the manufacturing processes are given just enough in detail to give a comprehensive idea of the construction. Many interesting points are brought out, as, for example, the fact that so simple an article as a needle must go through the hands of 100 skilled workmen, and the journey through the factory takes from six to eight weeks. Lists of the standard makes; tables of sizes; and cost of production are given.

The subject matter is organized in a most definite and logical way. Unimportant and unnecessary details are omitted, and the material is given in a clear cut, straightforward style. "Suggestions of service to customers" are most practical and will train, not only for more efficient buying, but for the best use and care of the articles bought.

The Cotton and Linen Manual is written in the same direct style. The material is well organized. It is not quite so interesting perhaps as the Manual on Notions because we are more familiar with the subject matter it contains.

It first classifies the materials that would come under the cotton and linen goods departments and gives suggestions for attractive arrangements and displays of goods. The usual information as to the source, cultivation, and manufacturing processes of cotton and flax are given. Then chapters on finishing of cloth, dyes and dyeing, mixtures, adulteration and imitation, and tests for cotton and linen are especially good. They contain a great deal of most practical information which the average shopper does not know and which will be of great value in buying table linen, towels, and dress materials. A list is given of the standard cotton and linen materials that sell by the yard; the origin of the name, their distinguishing characteristics, wearing qualities, and uses.

IVA BRANDT,
Iowa State College, Ames, Iowa.

School and Home Gardening. By KARY K. DAVIS. Philadelphia: J. B. Lippincott Co., 1918, pp. 353. \$1.28.

The Home Garden (Patriot's Edition). By EBEN E. REXFORD. Philadelphia: J. B. Lippincott Co., 1918, pp. 198. \$1.25.

How to Make the Garden Pay. By EDWARD MORRISON AND CHARLES THOMAS BRUES. Boston: Houghton Mifflin Co., 1917, pp. 176. \$.75.

The Child's Food Garden. By VAN EVRIE KILPATRICK. Yonkers-on-Hudson, N. Y., 1918, pp. 64. \$.48.

School and Home Gardening, as the title indicates, is intended for school as well as home use. It is not only a text book, treating in detail the usual garden subjects, but it is also a treatise on the educational and social aspects of garden making.

Many illustrations and diagrams clarify the plans and instructions. Chapters 18 and 19 constitute very complete garden calendars for the northern and southern states.

A bibliography of literature for gardeners is given in the appendix.

In *The Home Garden*, general instructions adapted to amateurs are very fully given under the headings: Location and Soil; The Preparation of the Garden; Planning the Garden; Planting the Garden; Garden Implements; Weeding and Transplanting; The Hot-Bed and Cold-Frame; Insecticides and Fungicides; What to Grow. These are followed by six chapters devoted to the growth of miscellaneous plants, grapes, and berries. Thirty-two pages are given to the gardener's calendar containing "suggestions and reminders of work appropriate to each month."

How to Make the Garden Pay is a more concise and simpler volume than either of the

above. After discussing right planning and profitable methods, the authors take up in alphabetical order the common vegetables, giving in connection with each one the information essential for the planting and general care of each.

Insect enemies and diseases are treated in a chapter by themselves.

The appendix includes tables giving fuel value and percentage composition of fresh vegetables and other foods; a garden planting table giving amounts of seeds required, distance apart, time of planting, time of maturing; and a home gardener's calendar for northern states.

"It is the purpose of this book to tell both novices and experienced gardeners something about ways and means of making small gardens profitable," and the authors have succeeded in doing this in a most clear, concise, and interesting way.

The Child's Food Garden is written as "a true beginner's book, with directions so clear and definite that any child who can read can understand them."

This small book contains a plan of the garden, and general directions as to preparation of soil and other operations; more definite directions for planting and cultivating a number of vegetables and flowers; an outline of work for each month of the year; suggestions and a time table for canning and drying; methods of dealing with plant enemies and caring for plant friends; frost maps and planting tables.

It is evident that so many subjects could not be more than touched upon in so few pages, but the garden information is sufficient to enable a child to be successful in a small space.

KETURAH E. BALDWIN

PAMPHLETS RECEIVED

Issued by the United States Department of Agriculture:

United States Food Leaflets: No. 8, *Instead of Meat*; No. 9, *Vegetables for Winter*; No. 10, *Plenty of Potatoes*.

Partial Substitutes for Wheat in Bread Making. By Hannah L. Wessling. No. A-91.

A Successful Community Drying Plant. C. W. Pugsley, Farmers' Bul. 916.

Issued by Teachers College, Columbia University:

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NEWS FROM THE FIELD

The Annual Meeting at Atlantic City. The annual meeting of the American Home Economics Association, that had been planned for August, 1917, was postponed because of war conditions that involved the attention of so many of the members of the Association that it was thought unwise to attempt a formal convention at this time. During the fall and winter, the need of getting together was more and more felt, and the decision to extend the session usually held with the Department of Superintendence of the N. E. A. into a two-day meeting with that organization was welcome.

The meetings were held on Friday and Saturday, March 1 and 2, preceded by a council meeting on Thursday evening. There were about 200 present at each session.

The president of the Association, Miss McKay, called the meeting to order on Friday morning and, in her opening address, outlined the work of the Association during the past year and a half, and its plans and purposes for the future. The program was planned for round-table discussions rather than more formal addresses.

Dr. Ruth Wheeler of the University of Illinois, presided at the round table on Friday morning. The chief topic of the morning was *What and How to Teach Food Values to the General Public*, and Dr. McCollum of Johns Hopkins presented the practical and helpful paper that will be found in this number of the JOURNAL.

Dr. McCollum was followed by Miss Caroline Hunt of the Department of Agriculture, whom Miss Wheeler introduced as one of the people who furnish a good example of the statement that "the highest science is the ability to put knowledge into usable form." Miss Hunt's paper, on *A Quick Method of Calculating Food Values*, is also included in this number of the JOURNAL.

Those who have tried this method are most enthusiastic as to its value as a time saver without loss of accuracy.

Miss Mary Creswell, of the Office of Extension, South, outlined the development of the work in the South, showing the tremendous progress that has been made during the last few years, and the changes that it has brought about in the home. Her paper had an important bearing upon what we shall teach in extension work. Dr. Alice Blood, who followed her expressed for the teacher the sense of responsibility to the community and showed how the city housekeeper may often be best reached by the one who goes into the home on some other errand. Both papers will be published later in the Journal.

Miss Florence Ward, of the Office of Extension Work, North and West, emphasized especially our coöperation with the Food Administration. Dr. Langworthy made a contribution toward our teaching practice that is embodied in a paper that will be published in the July JOURNAL.

Further discussion largely took the place of questions to Dr. McCollum.

The afternoon was a general session with the N. E. A., at which Miss Arnold was the chief speaker. A large audience greeted her at the Million Dollar Pier, and the Association was justly proud of her as our representative.

At the evening meeting, Mrs. Woolman spoke on *Clothing and the War*, calling attention particularly to the need of coöperation with the government, as well as with the textile men and such bodies as the National Garment Makers, in clothing conservation, and to the necessity of gathering more material on the subject of clothing. Mrs. Woolman also spoke of the need of conserving wool, and gave as one of the reasons why we get such conflicting statements in regard to

this the comparison in statements between unwashed and washed wool, the former weighing twice as much as the latter. She said that one reason for the shortage is that a soldier will need twelve times as much wool for his clothing as if he were a civilian, and she showed from figures that there is simply not enough wool in the world to meet our needs. Combinations of wool with other goods are often perfectly legitimate.

Miss Berry presented an admirable statement of the Smith-Hughes Act for vocational training, giving an historical review of the rise of home economics to a place of recognized importance since women went out into the vocational world, with the different effect in the East and West on the development in home economics training. She also contrasted the development of different branches of vocational education with that of home economics in the regular schools.

The meeting on Saturday morning was called to order by Miss MacKay with the appointment of a Committee on Resolutions, Miss Helen Louise Johnson, Chairman. Miss Carrie Lyford of the Bureau of Education presided at the round table discussion on Home Economics in the Public Schools under War Conditions. Miss Lyford outlined the part that the home economics teachers all over the country have taken in adapting their teaching to the new conditions, and stated that this subject has been introduced in more than 1000 new places in the past year.

Miss Grace Schermerhorn, newly appointed supervisor in the New York City Schools, presented the work from the standpoint of the public school. She referred to a school child's answer to the question, "What are the members of your family doing to help in the war?" After giving the different activities of the family, and particularly the food conservation on the part of the mother, the child added, "Father does not complain." Miss Schermerhorn applied this to the attitude of many people toward home economics. She emphasized the fact that the war work in the public schools should be part of the regular work rather than an interference with

it, and that the change should be in new applications rather than in essential modification of plans.

Miss Cara Harris, Supervisor of Home Economics, Shelby County, Tennessee, raised two points of especial interest,—the sympathy with which all the teachers of the schools are receiving home economics work, and the great influence that the home economics work in the school is having upon the community.

Miss Alice Johnson, supervisor in the Philadelphia schools, followed with the report of the special activities in those schools under war conditions, speaking of the plan to have each cooking center a Food Informational Center, and of the fine service for others in the sewing classes.

The last speaker of the morning was Mr. Persons, in charge Department of Civilian Relief of the Red Cross. He not only gave a large measure of inspiration, but epitomized the ideals and aims of the real service the Red Cross gives in its civilian relief in a way that showed the importance of the work as we had never realized it before. A further report of his address will be published soon in the JOURNAL.

The meeting on Saturday afternoon opened with the secretary's and the treasurer's reports and those of the various committees, including the Journal. These reports will be published in the bulletin of the Association.

The most important committee report was that of the textile committee that occupied the remainder of the session. Mrs. Martha H. French, State Normal College, Ypsilanti, and Miss Ethelwyn Miller, Iowa State College, each presented able and intensely interesting papers that gave a new insight into textile work. Discussion was only checked because the time for the close of the meeting arrived. Miss Miller's paper appears in this number of the JOURNAL and Mrs. French's will be published soon. One of the characteristics of this annual meeting was the varied interests represented. Not only teachers with perhaps a larger proportion of public school teaching than usual,

but housekeepers, editors, and magazine writers, were present and contributed to the discussion. The new officers of the Association have already been reported in the JOURNAL.

The National Education Association will hold its annual meeting in Pittsburgh, Pa., June 29 to July 6. The American Home Economics Association will conduct a section meeting on Monday, July 1.

The New York Association of Dietitians has been holding monthly meetings. At the March meeting, at Teachers' College, there was a lively discussion concerning military rank for dietitians employed by the government. The Association decided that something must be done immediately to secure this recognition of training,—especially now that the nurses of the country are trying to obtain it.

Dr. Sherman of Columbia University gave an illustrated lecture on The Present Food Problem at Home and Abroad. One important point brought out was that little rye is produced in this country and the amount of wheat saved from its use alone would not amount to much. Three-fourths of the world's corn is grown in the United States and a larger consumption of corn products is recommended.

Dr. Sherman told very vividly the terrible results of the lack of milk in Europe, the mortality of children being due to this cause, to a large extent.

Dr. Sherman showed by charts that health is better maintained by observing the rules of the Food Administration than by the average way Americans have been accustomed to consume food.

The April meeting was varied by a conservation dinner, observing all the principles laid down by the Food Administration. The meal was prepared and served by the class in dietetics of the Central Branch Y.W. C. A., under the supervision of Miss Penrose, and it demonstrated the good work that can be accomplished by applying scientific knowledge to government requests.

After the dinner Mrs. Mary S. Rose of Columbia University (Deputy Food Commissioner of New York) spoke of the work of the State in solving food problems and of the continual readjustment demanded by the food situation.

Miss Lord of Pratt Institute, showed our great duty of coöperation in the tremendous task of the National Food Administration and of the necessity of educating the people in the principles of conservation.

Miss George, Head of the Dietitian Division of the Red Cross Nursing Service, urged the need of dietitians for both foreign and home service. She also read letters from dietitians in France, showing the present lack of standardization of the work of the dietitian.

The May meeting was held in the Nurses' Home of the Post Graduate Hospital. Mr. Panchard, Comptroller of the Hotel McAlpin, Hotel Claridge, Café Savaran, and the Fifth Avenue Restaurant, spoke to the Association on "Waste of Food and Conservation." He emphasized the necessity of preparing "left-overs" in an attractive way if we are to eliminate all waste from our kitchens. He claimed that Americans do not know the art of preparing cold meats and left-over vegetables in a way that is digestible and pleasing to the eye and the palate.

The Need for Nurses. The United States Army and Navy Nurse Corps needs 8000 additional nurses this June, and before the end of the year 25,000 more will be required to care for the inevitable casualties among our military forces. If the war should continue for several years the United States may need an army of 100,000 nurses.

There are now 65,084 nurses registered in this country. Of these the American Red Cross has equipped and sent abroad 2865 for Army and Navy service, and has enrolled approximately 19,000, while more than a thousand have been appointed as instructors in elementary hygiene and home care of the sick, and about an equal number are serving on committees as recruiting agents.

As the demand for nurses grows, the public, as well as the medical and nursing professions, is confronted with the definite responsibility for releasing as many private nurses as possible for military duty, for utilizing hospital facilities, visiting nurses, and smaller organizations where one nurse can care for several patients, for preparing, through whatever means may be afforded, to assist in all matters pertaining to public health.

More than 50,000 women have completed the Red Cross course in Home Care of the Sick, established to aid women in caring for the minor illnesses in their own homes. This helps so far as it goes, but it is of the greatest importance that able and educated young women should be urged to enter the regular training schools in order to fit themselves fully for nursing.

Home Service. The following resolution was adopted by the Home Economics Associations of Washington, Idaho, and Oregon: WHEREAS, The State Home Economics Association desires to cooperate in fullest measure with the American Red Cross in fulfilling its obligation and accepting opportunity for service for relief in families of enlisted men, be it *Resolved*, That the Association accept the invitation extended by the Red Cross to lend assistance through: First, appointing a committee which shall cooperate with the Division Director of Civilian Relief in all efforts to maintain and advance the family standard of living; second, (a) in inducing home economics leaders to assist their respective Red Cross Chapter Home Service Committee, (b) instructing volunteers in home economics principles through the medium of chapter course training for home service, (c) service as friendly visitors to the families of soldiers and sailors.

Pop Corn as a Money Raiser. A unique and most successful way of raising money for the Red Cross was conducted by the Home Economics Association of Cincinnati. Pop corn markets were held on two days;

on the first day pop corn was sold in every public school in the city. For the Saturday down town drive Miss Lois E. Plimpton, President of the organization, had appointed teams for the hotels, clubs, department stores, drug stores, theaters, and movie houses. Bumper balls attractively wrapped in red, white, and blue paper were heaped high on white covered tables and disappeared as if by magic. The handsome sum of \$2000 was the net result. The specific purpose of the fund is to purchase equipment for nurses of Base Hospital Unit No. 25.

Notes. A report of the annual meeting of the Utah State Federation in *The New West Magazine* has this to say of one of the leaders in home economics:

"The chief event of the convention was the inspired address of Miss Alice Ravenhill on Woman's Service to the Nation. Miss Ravenhill's message to woman is that her greatest service to the nation is the proper guidance, rearing, and educating of the childhood of the nation."

A knitting machine to knit socks for soldiers has been purchased by the Home Economics Club of the University of Missouri. The girls voted to buy a \$50 liberty bond and the machine, which cost about \$20. With this machine socks can be turned out at the rate of a pair every two hours instead of several days.

British conservation of kitchen waste in army camps, effected by the Government Committee on Purchase of Refuse, has grown from £7,500 for the first month adopted to £80,000 in the last month reported, and has supplied the entire soap requirement for army, navy, asylums, workhouses, and other public institutions, in addition to glycerine sufficient to propel 17,000,000 shells per annum.—*Industrial News Survey*.

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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There must be no let-down in the program of conservation with the new harvest. Heartened by our success and by the spirit of devotion and self-sacrifice shown by the American people, we must go ahead more than ever convinced of our responsibility to those who fight with us and to those unfortunate peoples who look to us as the only source of the food supply necessary to keep them from destruction. We must keep the plate of the soldiers of the Allied armies full. That is the ultimate goal to be attained by the food saving program of the American people.

—RAY LYMAN WILBUR.

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FOOD CONTROL¹

HERBERT HOOVER

The Food Administration is purely a war institution. Its first and primary concern is the feeding of our own people and those of the allies, and thereby the maintenance of the strength of all the men, women, and children both there and here, and thus the strong arm of our soldiers.

The necessity for the creation of food administrations in all the countries at war with Germany arises solely from the situation in overseas shipping. Over one-third of the world's carrying capacity has been diverted directly and indirectly to military purposes, and of the remainder there has been an unceasing loss during the war.

The first adjustment of this situation has been to isolate the more remote markets. There are today abundant stores of food in Australia, the East, and in South America, but if the allies were compelled to go to these more remote markets for their whole food supply today it would require over 2,500,000 tons more shipping than are now in use for this purpose. Every ship we save is a ship built. The measure of ships saved by food supplied directly from North America is, until our shipping expands, the measure of ships for our own soldiers.

The whole war-food problem is simply and solely a determination of the amount of food that can be spared from North America. The marginal amount must be drawn from the more remote markets.

In the daily toil of all these Food Administrations there have grown up new and practical issues in matters hitherto regarded as pure science.

Terms strange to the lips of all but scientists three years ago are now our daily vocabulary. One must now reduce food to its physiological value, considering the most concentrated and durable forms for overseas transport and for the health and strength of populations.

¹ Extracts from an address before the Pittsburgh Press Club, April 18, 1918.

Europe today is eating to live, and to live it matters little, for instance, whether fats are drawn from creamery butter, from margarin, from lard, or from vegetable oil, or cheese. What *does* matter to food administrators is how much fat can be secured and can be delivered to the needy points with the least use of ships. To carry this instance further, Europe at one time produced most of her own fats and to do this it was necessary to import a large tonnage of forage. It *requires three times* the tonnage to transport fodder that it does the fats made from feeding the animals. Therefore, the various allied administrations have stopped the overseas shipment of feed for food animals, and we must find increased exports of fats, and direct our production to this end.

Our ability to supply the allied world with food lies in four directions:

First. The United States usually produces a small surplus of food for export over and above our normal consumption. This surplus we can export without economic disturbance.

Second. We have for years exported to other countries than the allies. By partial or complete embargo of these shipments we can slightly increase the supplies available to the allies.

Third. We can expand the area planted, and if our harvests are normal we can enlarge the surplus for export.

Fourth. Our normal consumption and waste of food are anywhere from 15 to 20 per cent more than is necessary to maintain our own public health and strength, and we can in an emergency restrict the national consumption to our need and thereby increase our exports.

Our resiliency of resources in these four directions, principally the latter, is such that we can, if we have the will to do so, maintain the strength of the allies and our own people, and all talk of famine is mere hysteria. Our world food situation is not to be interpreted as famine; at worse it is to be interpreted in terms of soldiers to France, or in terms of larger shipbuilding programs.

As to what our marginal possibilities of exports to the allies may amount to, we can gain some idea if we review the situation since our last harvest—a period coincident with the period of the Food Administration.

Because of the enormous demand upon us during the previous year we entered the last harvest with our national stocks of cereals practically exhausted. We carried over less foodstuff to the new harvest than at any time during many years. Our herd of hogs, our most ready and prolific fat supply, was apparently below normal as the result of previous years' heavy exports, and we were faced with increased demands.

If we reduce our annual production to its actual nutritive value we find that our production of 1917 is about 7 per cent below the average of the three previous years, and we have had to reduce our consumption by about 7 per cent this year in order to do out duty by the allies.

With increased prosperity in wide sections of the community engaged in agricultural and industrial pursuits the standards of living have been raised and the food consumption of the American people materially increased. How acute this is may be indicated by the fact that our consumption of beef products apparently increased by 10 per cent during 1917. We therefore had to stem the tide of increasing consumption.

The necessity of this reduction in consumption falls unequally on various commodities depending upon the durability of these commodities, their convenience in shipping, and the food habits of the people we feed. Nor can we anticipate in advance exactly what may be required from us in these disturbed times. As illustrating both points—we originally calculated that we must ship 100,000,000 bushels of wheat this year. We have had to raise this to 160,000,000 bushels, out of a home surplus of only 20,000,000 bushels over our normal consumption. Thus we have been compelled to increase our conservation during the last half of the year.

Another instance of the disturbances in original plans arose from the two and one-half months of storm weather which paralyzed our railways. Our hogs were blockaded on our farms, and the situation not only rendered difficult the supply of meats in this period, but the flood of animals released with improved transport overcharged our storage and shipping capacity. We therefore were compelled to relax our conservation efforts for a short period until the flood passed. It can thus readily be seen that there can be little fixity of policy in an administration that is dependent on the exigencies of war and shipping. We must alter our tactics from day to day to meet the changing world situation.

The reduction of consumption during this year has been vital. To secure it we had three alternatives of action. Rationing; bidding up prices in the purchase of allies' supplies until the consumption falls; obtaining a voluntary reduction of the individual consumption, simpler living, economy in waste, substitution of commodities we have in greater abundance for those we need to export.

Any system of positive rationing of the United States bristles with difficulties. Fifty per cent of the population are either producers or live in intimate contact with the producer, and, therefore, can not be

restrained in their consumption by any rationing. The consumption of the very poor is not beyond the necessities of their health and strength.

Our industrial population varies greatly in its habit of consumption of any given commodity in different parts of the country. Furthermore, this class of the community varies greatly in its habit in different sections of the United States as to the commodities they consume. For instance, the southern worker consumes perhaps not more than 2 pounds of wheat products per week per capita, whereas in some parts of the North the worker consumes 8 pounds. Rationing of wheat on any broad national line would increase the consumption beyond necessity in the South and decrease it in the North below necessity. Furthermore, to adopt rationing as a positive system would cost the Government \$10,000,000 or \$15,000,000 annually for bureaucratic expense.

It has been believed by many that the best adjustment in consumption would be obtained by increasing price levels in that commodity in which it is desired to reduce consumption by simply bidding up the price for allied supplies. I feel strongly, however, that reduction of consumption to the extent that we require by an increasing price is simply and purely to place certain commodities out of the reach of those classes of the community who have not the purchasing power, and that this conception is simply conservation for the rich and against the poor. The adoption of this principle would mean that the poorer sections of our community would have paid in suffering and the better-to-do would have paid in price many score times the cost of any other system of reduction.

If we are to increase the price of our foodstuffs merely to decrease their consumption, we must enter a vicious circle of constant readjustment of wages, for our working people must live.

Furthermore, we could no doubt reduce the consumption, for instance, of sugar by 20 per cent, if we doubled the price, but to double the price of sugar alone means an annual drain on our population of \$600,000,000 and this \$600,000,000 would go into the hands of a vast number of middlemen and would give rise at once to profiteering, discontent, and would lay the foundations for social revolution.

In considering the whole problem, we determined upon a line not hitherto applied and the success of which we believe will be one of the remembered glories of the American people in this titanic struggle. That is, that we should place the reduction of consumption on a voluntary basis. We felt that we could secure voluntary reduction by savings which would be made—not from the necessities of the poorer classes of

the community, but in the saving out of plenty by the better-to-do classes.

Voluntary conservation has as well a moral side, to my mind, of some importance. By it we are appealing directly for the self-sacrifice of the people of the United States to the carrying on of the war. I do not believe that there is another nation in the world in which the proportion of individuals of a willing sense of self-sacrifice is so high as in this people of ours, and in which a sufficient voluntary reduction could be obtained. Our program therefore has been a hazard upon the number of people of this kind in the United States. This basis of reduction gave some trepidation to the allies, but I am happy to say that we shall have performed our national duty, the allies will have been fed during this harvest year, so far as the obligation falls upon us, almost wholly upon a voluntary footing. Far beyond this, it is justifying us in our belief in the high idealism of the American people and their willingness to sacrifice.

We have had some criticism from individuals who believe that they should not be called upon to do more than their neighbors willingly do. In response to this, my feeling is that our Army does not fail to go over the top because there may be two or three slackers hiding in the trenches.

Aside from the prime necessity of protecting our independence and our institutions, there is but one possible benefit from the war, and that is the stimulation of self-sacrifice in the people, the lifting of its ideals, and the diversion from its peace-time inclinations toward the purely material things in life, to a strengthening of its higher purposes. I do not say that such compensations are full compensations for war, but they are at least an amelioration of the terrible currents that are threatening our existence. Therefore we felt that if there could be brought home to the sense of every American household the necessity of this personal and individual sacrifice we would have spread the opportunity for service beyond those who sacrifice in giving their sons to immolation on the national altar.

There is another side of all this to those of us who have lived behind the German lines. No hour goes by but our hearts are haunted by the scenes of long lines of emaciated women and children who today and for three years have gathered in Belgium for their daily bread from America. That pittance—their all—represents scarcely the wastes from American tables. This winter these lines have, for the first time during the war, gathered in the poorer sections of England, France, and Italy. Not only should this pull at our hearts, but, beyond this, it is a

menace to our very safety. *In the presence of a common enemy we sit at a common table with all people defenders.* Is the daily call of the Food Administration for less waste, for simpler living, to eat only for strength, not a call to conscience? Is it not a vital call of defense?

As to next year we can formulate no plans until we know the harvest. Our farmers are this year, despite great handicaps, making the greatest of efforts. The weather is, however, our real and final food controller. If we have a bumper crop we can save many ships from the long voyages. Even without a bumper crop we could save more food next year. A crop failure, so far as to spell famine, is humanly impossible; the worst might spell more conservation.

The reduction of food supplies below normal and all of the commercial difficulties connected with the aggregation of these reductions in disturbance to inland and overseas transportation have caused new currents in our economic life, and the Food Administration has, by force of necessity, had to pioneer untraveled paths in the economic jungle of war as an incident to its main purpose.

So far the Government has developed no principle of price-fixing as a broad economic policy. Dislocations apply first to one great commodity and then to another, and, therefore, our aspect of the problem is to deal with them as they arise, commodity by commodity. We are dealing with conditions and not with theories.

Every export from the United States today is under control. It is controlled that it may serve the positive military ends of the Government. All of our exports are directed to supporting the allies, or, alternatively, where we deal with neutrals, to get the *quid pro quo* for the sacrifice of our commodities.

It was found by experience to be absolutely impossible to trust to the normal commercial agencies to select the prime commodities necessary for national existence among the allies and to trust to the incidental operation of trade to maintain the maximum handling of shipping.

Therefore, the European governments have been compelled to undertake, as the consequence of shortage on supplies, the single-handed purchase of their supplies both for civil and military purposes. There has thus grown up an enormous consolidation of buying of 120,000,000 European people, a phenomenon never before witnessed in the economic history of the world.

The buying for our own men is necessarily concentrated in one agency,

instead of 5,000,000 separate agencies as before, and we have thus in our midst a second great engine as a necessity of war conditions.

In order that these two buying agencies should not get in each other's way it has been necessary to place them under joint direction. In the final outcome, therefore, we find ourselves in the presence of a gigantic monopoly of buying just as potent for good or evil as any monopoly in selling, and in many instances either making or influencing prices. Therefore, not through any theory, but through an actual physical fact, the price made by this gigantic buyer dominates the market. This is price fixing in a light never contemplated in economic history or theory, and it is time that economic thinkers denude themselves of their procrustean formulas of supply and demand and take cognizance of it.

It is entirely possible for the Government to make these purchases to the best advantage of the allies and to the Army and Navy and to disregard totally the civilian population, either the consumer or the producer. When these purchases aggregated to such a volume as to make inroads on the normal consumption of the civilian it would mean that the residue would go to the highest bidder.

This would be conservation again for the rich and not for the poor with a vengeance. Had we allowed this to go on in wheat, flour would today be \$40 a barrel, instead of a universal price of practically \$12.

The producer is also subject to damage by these great buying agencies. Production of food does not take place evenly over the year; it is seasonal. It is entirely possible for such a monopoly to manipulate prices in the season of surplus marketing to figures below the producers' cost. Again, transportation both inland and overseas is subject to every vicissitude of war. Temporary stoppages in transport can produce every speculative disaster unless some stability is given to markets. Therefore both sides, consumer and producer, must be safeguarded by wise direction of this buying power, and this is bound to result in price regulation in certain commodities in just protection to both.

Our great President has stated definitely that where war purchases dominate the market the civil population must be protected equally with the Government.

At this point there is a principle in national war economics that seems to me fundamental. I do not believe that any person in this United States has a right to make one cent more profit out of any employment than he would have made under pre-war conditions. I do not care whether this refers to the farmer, to the laborer, to the

manufacturer, to the middleman, or to the retailer; to me, every cent taken beyond this standard is money abstracted from the blood and sacrifice of the American people.

I do not believe that extortionate profits are necessary to secure the maximum effort on the part of the American people in this war. If we are going to adopt that theory, we have admitted everything that has been charged against us of being the most materialistic, the most avaricious, and the most venal of people in this world. If we are going to admit that the Government, in order to secure the supreme effort of its citizens in production, must bribe them with money to this exertion, we have admitted a weakness of American character, of American civilization, and of American ideals that puts us on a plane below German *Kultur*. Moreover I am not at all convinced that extortionate returns do stimulate production, for they may tend to cause relaxation in effort.

Do not mistake that I am saying that prices and wages should return to the pre-war normal, because the incidence of war before we joined in it had lifted our costs of operation, and there must be compensation in every direction. Nevertheless, I hold that any man who has made more than his necessary living out of the cost this Nation is giving in the blood of the boys we are sending to France should not stand out as a benefactor to his community.

I have had this statement met before now with the expression that it is dreamy idealism, but I have found no individual who was prepared in his own instance to defend any such line of action.

This doctrine has been made law only to the larger food trades. I am confident that profiteering has, from a national point of view, been greatly reduced in the regulated food trades, and in consequence my belief is that it should be applied generally to all business in this country, and it is also my belief that before we are finished with this war, that will have been done.

To me this goes much further than the mere case of the individual and the blame that may be attached to him. As I have seen this war develop from an active participation in its backwash and misery since its first day, I have seen growing out of the masses of people in every country aspirations for a great economic change. That change, broadly, will be in the view of extremists that those who work with their hands will obtain a larger portion of this world's goods, and those who work with their brains will obtain less, while those who do not work should obtain nothing.

My own view is that hand and brain workers will obtain a larger proportion of that which formerly went to the nonworkers—war taxation will do this in any event.

If we are to bring about this economic change in an orderly and American way, and not by convulsions during the period of recuperation from the war, we must lay the foundations for it now. None of us wants a repetition in the United States of the history of the last 12 months of Russia. The proper social development of this country along these lines fills the background of all men's minds and its proper guidance rests upon the liberal and thinking men of the country.

Since the Food Administration was founded the price of food commodities has increased 18 per cent to the producer and decreased 12 per cent to the consumer.

This has been accomplished largely by voluntary coöperation of the food trades. Ninety-five per cent of our traders desire to serve the common interest and the measure of their coöperation is one of the most illuminating proofs of the high sense of service in our people.

Another economic theme which the Food Administration has had to pioneer is that of saving. Speaking broadly, we have some 36,000,000 of able-bodied manhood.

Already we have diverted from 8,000,000 to 10,000,000 men from their normal occupations toward war and the products it requires. It is possible that we can increase the exertion of the remainder of our productive population by eliminating nonessential labor, by more intensive labor and longer hours, by the application of woman's labor, by putting the boys into labor earlier than otherwise, and can make up some of the gap in our productive units. We can not, however, compass the whole, and the deficiency can only be overcome by the reduction in the consumption of commodities.

This does not apply to food alone; it applies to every commodity of which we consume more than is necessary for our health and comfort. We must strip to the bone in order that we may afford the economic luxury of the diversion of this portion of our productive power to the destruction of war.

The subscription of Liberty Bonds from surplus income is no sacrifice for the American people. It is a superlative investment. It is the saving that we make in the consumption of commodities and in the employment of labor that is the sacrifice for the winning of this war.

Another prime economic theme by which I am impressed in this war is this: The American ideal in executive work is efficiency, but efficiency does not alone mean the best appliances and the greatest numbers made for the least cost. In war it involves a new factor that transcends all others—and that is speed.

In this light measures taken, results attained, can not be judged by the microscopic inspection of the threads in the tapestry. Its broad lines, its inspiration, must be attained quickly, not by years of careful development. It will be of no avail to us if we lose a war, even though it may cost less per unit than any war in history.

The foundation of our civilization lies in the stimulation and freedom of self-initiative—the fullest development of the individual. It is a philosophy of peace. German Kultur is based upon the submergence of the individual in the State to the ultimate maximum efficiency and power of the State. It is a philosophy of domination and of aggression—it is the philosophy of war. These truisms are oft stated nor are they, since 1914, a mere philosophic discussion. Those of us who lived for years in the sufferings of the Belgian people carry no literary illusions. The robbery and destruction not only of homes but of cities and of provinces, the butchery of pleading people, the thousands led, literally in chains, to slavery in German mines—all that the name of German arms might carry terror to the whole world, is no philosophic discussion.

We are in a life and death struggle to stamp out a system, to right a wrong, to preserve our institutions, our freedom, to preserve the right to peace. The first of the races which resisted the Germans were the Slavs. They have been crushed. The Latin nations are still vigorously in the field, but the long brunt of battle has worn them severely. Our English cousins are the next to carry the full brunt of aggression. Today they stand between us and Prussianism. Our turn comes next. No matter what happens to them all, we must go through. They may conceivably—worn by exhaustion—fall by the wayside. We may become the last hope of 350,000,000 overrun, liberty-loving men, women, and children. If our associates fail, it may take us twenty years to right the wrongs done. Twenty years is a short time in the history of our race. Every increased atom we sacrifice today shortens the period of our travail. We must do it, or we are no longer free people.

LEARNING THE LESSON OF FOOD CONSERVATION

SARAH LOUISE ARNOLD

Dean of Simmons College and Member of the United States Food Administration

The rapid advance of the food conservation idea has been a notable event in the history of education. If we have heretofore confused the two terms, schooling and education, the events of the food campaign will help to clear our understanding, for now we are observing the education of a nation confronted with the problems of war and rapidly adjusting itself to conditions hitherto unknown. The processes of education are ordinarily slow, as we see them. We have outlined careful and deliberate courses of study, giving many years to the training of our youth and the mastery of certain ideas, but the war has decreed a different curriculum for us. Messages involving world problems have been given us to read. It has been necessary for us, as students, to wrench ourselves away from accustomed habits and traditions and to look at familiar things in a new light against the background of the world tragedy.

When they said to us in the beginning, "Food will win the War," we dimly understood. That the nation should have vast plans with reference to the food supplies of the world, and that these should have their bearing upon the war seemed reasonable enough, but completely remote, as have been most of our subjects in school; and that we as individuals should have any part in the matter, should even become *pars princeps*, seemed impossible.

Nor was this a strange judgment on our part. Food and the partaking of food, had always been a personal matter—intimate, individual. We had eaten what we pleased, chosen what we liked; we had ceased eating when we thought, or felt, that we had had enough. Fond mothers rejoiced in their ability to present Johnny with his favorite pie, and Susie with her beloved layer chocolate cake. The Jones family made one sort of gravy and the Brown family another, according as Grandmother Jones or Grandmother Brown had dictated. We had a fine scorn of the curious food habits of other countries, and even traveled abroad bemoaning the kind of fried potatoes we used to have at home.

It was startling to imagine that these personal affairs and tastes of ours had become the nation's concern. The first immediate reaction on the part of many of us was criticism, question, and even revolt. Was not this the land of the free as well as the home of the brave? If freedom did not mean eating what we, as individuals, chose to eat, what did it mean?

Fortunately the food production campaign was urgent, and almost spectacular. It demanded, even commanded, attention from all of us; and it secured coöperation from all of us, as events proved. Leaning over our backyard fences, to confer with our neighbors who had likewise planted precious potatoes in a barren soil, we somehow became accustomed to the notion that the nation had made its demand upon us with reference to food, and that we were attempting to comply. The national family was bigger than it had been; there were more mouths to feed; it was easy to see that more food must be raised; everyone wanted to help. Thus the way was paved for our introduction to "food conservation." Here was a quantity of perishable food stuff which must be conserved or it would go to waste. Food conservation then became synonymous with putting perishable food stuff into cans in such fashion that it would keep.

Perhaps this definition of food conservation was accepted chiefly by the men who were interested in food problems. To them it seemed distinctively woman's work, except when it was undertaken on a large scale by the community, or on a commercial basis by the canneries; and this definition seemed to them adequate. Meanwhile the Food Administration was constantly appealing to the families of America, urging the prevention of waste and careful economy in the choice and use of foods. The more thoughtful among us were from the beginning adjusting our minds to the essential uses of food. How could we test our economy if we did not understand food values?

What is food for? Of the available foods, which are the essential foods? How much is enough for you or for me, for the baby, or for the robust and active father of the family? What foods can safely be packed into the luncheon basket? What foods can be bought already prepared? What foods must be brought from afar, and what can be secured near home? Which foods are indispensable, and which may easily be dropped from our list?

If such questions must be answered by every woman, it becomes clearly evident that no true economy or conservation of food can take place without enlightenment of the public mind; that everyone who draws upon the food supply of the country must be taught to choose wisely and to take no more than is necessary or fair for his share.

We may rejoice then, that home economics, though in its youth, was ready with a reasonable answer to many of these questions;—that

nutrition experts were in the field, that the Department of Agriculture, with its forces, and the various institutions providing instruction in home economics or maintaining laboratories of nutrition were ready to explain to all of us the real use of food and the manner in which it should be chosen and prepared. The home economics forces promptly rallied and offered their aid to the Food Administration. Many of the leading home economics workers spent their summer in Washington, preparing outlines and bulletins for distribution, answering the myriad questions, and helping to instruct the anxious women who had all at once discovered that they were unprepared for the duty which had been theirs for years and yet which they had not consciously measured.

It is now more than a year since war was declared. Those who have watched the food campaign from the beginning are aware of a complete change in the attitude of the general public. Instead of the irritated rejoinder when personal privilege seemed to be questioned, we find now the prompt and almost complete response to the appeal of the nation. In other words, a psychological miracle has been accomplished. We are recognizing the food supply as belonging to the world in this period of national anxiety and upheaval. We are waiting for the day's orders, anxious to know what food stuffs are needed by the nation and, therefore, what foods are available for us. We have begun to understand that we—with the Allies, the war-worn women and children across the sea, our boys who are at the front—are sitting at a common table. Before we can partake of food, we must ask ourselves whether their need is greater than ours, and whether the food which we would choose must be set aside for them—*dedicated* to them.

This consciousness is now deep, strong, and nation-wide. We have developed the community conscience, the world conscience. Furthermore we are seeing ourselves as a part of the nation, standing shoulder to shoulder with our neighbors and receiving the common command. Uncle Sam says to us, as he looks from the familiar poster, "I want *you*." This means, "I *need* you." The message comes to each and everyone of us.

The great truth concerning the food campaign is that every individual is responsible for its success. Everyone of us is a consumer of food. Everyone of us faces food three times a day, choosing either to pull down and deplete the precious supplies which must avail until the next harvest; or each one of us determines loyally to make no drain upon this all-too-small food store of the nation.

If there had been shipping enough, these lessons would not have been so clear and so insistent. If all foods alike could have been shipped across the sea, our anxieties would have been greatly lessened. But, from the beginning, it was apparent that the bulky foods must be left at home and that only the most essential and those that could be packed in the smallest space could be sent abroad. From day to day our vision cleared, our understanding increased. Just now our attention is centered upon wheat. If the nation's supply is to prove sufficient for the Allies and our dependents across the sea, some of us must let go our demands upon wheat. It is not safe to trust to old habit or to average careful use. Everyone who understands, everyone who can aid, must do his utmost in order to safeguard the precious store.

We have become conscious not only of the starving Belgians, the heroic French, the valiant and enduring English, but we have also remembered that the food supply of our crowded tenements is dependent upon our choice and our intelligence. We have come to understand that the food upon our breakfast table depends upon the great areas of production, where the farmer plows, sows, and reaps, that we may be fed. We know something of the heroism that risks everything for the season's crop, and in imagination we take hold of hands with this heroic worker on whom we have so long depended, but whom we have so little understood. We begin to measure the anxieties of transportation and to know that the ton of coal needs an army of men, if it is to be brought to our doors. We begin to realize how our thoughtless demand modifies the supply here and elsewhere. If there is quibble, or irritability, or complaint, or revolt, we know that it is because the light has not yet reached the one who makes the complaint; his eyes have not yet been opened to the nation's need and to his personal duty.

Never in human history has there been so strong an appeal to every individual of the nation; never have we faced with clearer eyes our own duty; never have we been nearer the clear understanding of this common obligation.

When the nation said to us, "We must ship all the food that can be spared. How much can you spare?" we remembered, with a sinking sense of failure, that we were unable to answer the question. We do not know how much is enough; we have not understood the true purpose and use of foods. This one function of home economics is therefore for the present in the limelight, or rather it is under the searchlight. One question after another faces us: the answer must come out of thoughtful study and attention to the daily problem.

How shall we learn? There is already available a considerable library of valid material. The nation teaches us through the Food Administration and the Department of Agriculture. Every morning's paper furnishes us with new and reliable statements of fact. It behooves every thoughtful individual to understand his responsibility for choosing food wisely and of maintaining his health and vigor, so far as food can maintain it. No longer should we omit from our school programs this vital subject. No longer should we shirk the responsibility. Somewhere in the course of the schooling provided for the nation, this important subject should be properly treated. Those most liberally educated should help to determine the place of this subject in the school curriculum, but, after the experience of this past year, no thoughtful student of education can assent to the exclusion of the subject from the school program.

This review of the progress of the food conservation idea is addressed to those thoroughly familiar with home economics. We may rejoice that we are beginning to see clearly the big and essential choices which we must make. We are learning to see our individual habits and traditions against the background of the world need; we are beginning to recognize ourselves as soldiers of the common good; and we are beginning to discern the difference between the little and the great, the essential and the non-essential.

Let us hope that out of this great experience through which we are passing, we shall all learn to see our work in a new light, to devote ourselves anew to the greater gospel, and to set forth as now revealed to us the great essentials of the American home and the responsibility which must forever rest upon those who determine its influence.



A BREAD CARD SENT FROM FRANCE. THIS AMOUNT WAS ALLOWED THREE TIMES
A DAY

OURSELVES OR THE ALLIES¹

ALONZO E. TAYLOR

United States Food Administration and War Trade Board

I wish very briefly to lay stress upon three points that every one in this room ought to realize and accept as war policies.

We have got to reach the place, each one of us, where we define every decision in our lives as an act of war policy. Everything that we do, plan, eat, wear, must be analyzed and measured from one single point of view—will it contribute to the carrying on of the war, or will it contribute to its prolongation. There is no other thing in the world for us but to define everything in our lives as acts of military necessity or policy.

The first necessity for us is to get a clear conception of the relation of wheat in the human diet and to divest ourselves of all preconceptions that a life of generations of ease, indolence, and luxury has bred in us.

We are accustomed to regard wheat as a more or less indispensable article of diet. It is not. It is an article of luxury, and absolutely nothing else. Wheat possesses over oats, corn, and rice absolutely no nutritional quality for man or beast. It has no more protein, and no better protein. It has no more fat and no different fat. It has no mineral salt better or in larger amounts. It has no more fuel or better fuel. It is just *one* of the cereals, and there is not the slightest evidence that it is the best one, because, so far as comparative tests are concerned in animals, it is not the best one; it is very far from the best one.

Our predilection for wheat is solely a question of taste, comfort, and convenience; it is absolutely nothing else. Wheat makes the nicest bread, the lightest bread, the bread that is transported best, the bread that keeps moist and sweet longest. It lends itself to the habits of ease and convenience of a people; and because it lends itself to the convenience of a people, we want it sent to Europe and not kept here, and we ask and expect the American man and woman in judging of every situation as contrasted with that of the Allies, men and women, to ask who has the larger burden to bear, who has borne it the longest, who has wasted in resources the most, who has lost the most by sacrifice, who has suffered the most in death and destruction, we or the Allies? And when we have a choice as to whether we or they should increase or decrease our burden, it ought to be not the duty, but the joyful privilege of every

¹ An address given at the Meeting of Hotel Men, New Willard Hotel, Washington, D. C., March 29, 1918.

American to lessen the burden of every man, woman, and child in the Allied countries of Europe, by accepting the heavier burden on this side. And because wheat is easier to prepare than oats and rice and barley—that is the very best reason in the world why we ought to accept the oats and rice and barley and to give them the wheat that is necessary to maintain a normal ration.

You serve a great many food faddists and cranks, and you will hear a great many expressions that your patrons cannot eat this or that, merely because they are accustomed to this or that other thing, or because they have had idiosyncrasies bred in them or developed by luxury.

Now, whenever any one of your patrons tells you that he or she cannot eat oats, or rice, or corn, but must have wheat, that individual is either a crank or a slacker, and deserves from your hand only the consideration proper to the one or the other.

We have all to decide whether we will serve the Allies, who need help the most, or whether we will serve ourselves who need it less. We had better begin serving the Allies now.

The second point that I wish to emphasize, and this is based upon European experience in the art of rationing, is the enormous positive example, the worth of the example, of the highest grade hotels and restaurants. There is no such thing as enforcing a food conservation program in public eating houses unless the very best hotels and restaurants lend the positive example in every way and in the most punctilious fashion. The greatest diet difficulties in Germany today are due to the fact that the poor man realizes that the big hotels do not play the game. A rich man today in Germany can buy anything he has the price to pay for—hams at \$60 to \$70 apiece, butter at \$5 a pound. Any delicacy outside of the regulations can be bought by a man of wealth in Germany today, and this has honeycombed that nation with graft. And it started with the very best hotels, the Adlon, the Esplanade, and they are today responsible for the disorganization of the rationing systems in public eating places. Each manager or owner of the high grade hotel and eating house has a positive influence and example that cannot be measured, as judged by European experience. Each one of you has the chance to be a big brother to a Boy Scout, and how the Boy Scout acts will depend very largely upon not only your example but your positive working influence with the institutions and establishments that are smaller, simpler, and in no way as influential as your own.

We have just sent over two of the best food experts of the United

States to Europe, and the striking thing contained in their letters from London and Paris is the scarcity of food in the best hotels of those two cities.

Thirdly and lastly, you have a very important field of negative example. It is not possible to maintain a conservation program in the home, if the husband can leave and go to a hotel and escape it. It is impossible for a home program to be successful, so long as hotels, restaurants, public eating houses and clubs will give the spoiled man those things to eat which the housewife is trying to keep him from having.

This is not a theory; it is an absolute fact. We hear it from every state, we hear it from all classes, we hear it from women of large means and from women of little means. They who are trying to play the game, who are conscientious, are frustrated in their efforts at conservation by the selfishness of men who will not play the game with them because they know that they can find some public eating places in which the policy of conservation is violated. In this negative manner, by making it impossible for selfish men to break the rules which their wives are trying to follow, you can contribute enormously to the effectiveness of a food conservation program.

Go to England today and compare it with England of a year or two years ago, and what is the striking conviction that comes home? That the intensity with which England is fighting this war is due as much as anything else to the example, force, and ability of her upper classes, so-called, the classes of means. They deny themselves the most, they take the heaviest burdens, they reduce the most from their accustomed standards; and the poorer classes, the working classes, and the union labor groups of England have become convinced that the British classes of wealth and station are absolutely in this war to the end, are willing to risk everything and will stand every deprivation that they ask everybody else to stand, and more. And when this spirit comes over this country, we shall all have a much greater intensity in the carrying on of the war than we at present possess.

I wish every one in this room could go to the battlefield of France, not merely to see what a front looks like, with its trenches, its men, and all of the paraphernalia, but to get the reaction of the French common soldier toward the American visitor. These men who have faced death for three and a half years for you and me, fighting a battle in which we have just as much at stake as they have—these men salute an American civilian with an expression of respect, reverence, and trust that is absolutely past description by human words.

Why do these French soldiers who have struggled with death for freedom for three and a half years salute the American? Because in that salute they express their trust in America in the war; they express the trust they have that we shall assume our share of this struggle from every point of view, not merely by governmental participation in a military program, but also by the reconstruction of our entire lives from the point of view of saving and sacrifice, by supporting them in the same sense that the American boy who fights beside them supports them, and is supported by them.

We must be worthy of this trust. When a French soldier salutes an American civilian, knowing that that American is merely one typical of a hundred and five million, he expects us to do our duty as an ally, and he knows we will do it. The people of France know that the American people are being asked to undergo food conservation and they know that the man who asks them to undergo it is the man best qualified in the world to lay out a program—the Hoover of Northern France and Belgium and now the Hoover of the United States.

From the National Council of French Women to the Women of France

"These last months of the war will be the hardest. French women know it and bravely they will go through the necessary ordeal. They will accept all restrictions in order to obtain victory which will allow their children to know the joy of life and beneficent peace.

"Each of us must simplify her mode of life. Deprive yourselves, economize, and you are working for your country. Let those whose material well-being is assured set an example to render the hard privations of the hour less grievous to their sisters.

"Workmen, like us, you are weeping for dear ones; like us you hate war. It is in order to render war impossible henceforth, that we must hold out to the bitter end."

WHAT RETAIL MERCHANTS ARE DOING FOR FOOD
CONSERVATION

SARA MERRILL

United States Food Administration

The retail merchant stands at the contact point between the producer and the consumer. Upon him falls the responsibility of dealing directly with the housekeeping woman, who is, after all, in charge of the nation's commissary. It is estimated that fifteen out of every sixteen women in the United States are "free women," that is, they manage their households without depending upon the help of servants. They plan their meals, buy their food, and prepare it with their own hands. The retail merchant influences these women in a thousand ways—their very tastes and habits are the result of the merchandise he offers them.

Things to eat and things to wear are introduced to the American home by the way of Main Street and the stores that dwell thereon. Before the war, the merchant called this educational work "good business." The Food Administration recognizes the selling machinery of business as a valuable educational force, which can adapt itself to helping the Government without any trouble at all.

The American housekeeper does not "take orders." She gives loyal service because she has been trained in a free and democratic country instead of being educated under the military discipline of an autocracy. If she resents being asked to make corn muffins when her family prefers hot biscuit, it is because she does not understand that wheat is one of the deciding factors of the war, and that she, personally, must readjust her cooking habits so that she may release her share of grain for the people at the front. She goes to market with a basket on her arm and straightway the war comes home to her as something especially invented by the grocer to annoy her. She bumps into the "fifty-fifty" rule which obliges the grocer to sell equal weight of other cereals with flour, or the war prices make her feel that she is suffering a personal injustice. When the grocer is able to explain matters satisfactorily, she changes her mind, and cornmeal and the other wheat substitute cereals begin to look like sacrificial offerings which she can lay on the altar of democracy, via her dining table, with a thankful heart.

The only way to manage a woman in this free country is by stirring her imagination. Perhaps it seems odd that this duty which was once the exclusive duty of the priests of ancient gods, should now be vested

in the corner grocer or the hardware merchant, or the dry goods store. But there they are at the contact point, and they are ready to deliver any message for the Government. Playing on the imaginations of their customers is an old familiar game.

Their display windows are used to visualize in an unforgettable way the grim story of starvation and famine which threatens Europe, if the United States fails to send the wheat and other food staples to sustain the people of the war zone. The window display man dramatizes the part played by cornmeal, oatmeal, and other cereals, the food for patriots at home, the woman's weapon against the devastation of the Hun. Cleverly the merchant advertises the heroic sacrifices of the women of France and England and Italy, the cry of hungry little children in Belgium, and the horror of Poland and Roumania.

Almost every advertisement in the local newspaper carries some reminder of the war, sandwiched in with the price of perambulators. Every leaflet and circular says glaringly, "Food Will Win The War." In a hundred ways, the selling psychology is utilized to play on the American heartstrings, and the American love of freedom and fair play. Finally, the light breaks through and the American housekeeper knows that the world is *her* world and the freedom for which men fight is *her* freedom. If the appeal is made to her for wheat, she gives it, and her family does not suffer, because she discovers a dozen other ways to make biscuits and muffins and pies and cakes, using flours not needed for export.

The merchants are well organized in this patriotic service. The Federal Food Administrator in each state has chosen a leading merchant as a member of his staff. In turn, the merchant representative chooses deputies in each city and county, so that, when bulletins or printed matter are received from the Food Administration at Washington, they can be handed along the line to the individual merchant in the big city and at the cross roads store. Suggestions are furnished monthly for food conservation window displays, newspaper advertising, direct advertising, such as leaflets and circulars, demonstration booths, outdoor signs, auditorium meetings, and the education of store employees, making, in all, seven avenues that the merchant has thrown open for the use of the Food Administration. His own time and money he gives cheerfully, without any expectation of reimbursement or profit. He wants to win the war, and nothing else matters much to him. Under these conditions, the citizen must be both deaf and blind to escape the knowledge of his duty to save food when the merchants are enlisted to "spread the gospel."

THE WORK OF THE LIBRARY IN FOOD CONSERVATION

EDITH GUERRIER

United States Food Administration

Libraries have for so many years been accustomed to catalogue and file and arrange their affairs according to certain well defined systems that no additional organization of complicated mechanism was necessary to start them in Food Conservation work.

One librarian on the staff of the Federal Food Administrator in each state acts as Library Director. These directors have accepted this responsibility as a patriotic duty; and in addition to their regular work have lined up the libraries of their states in the Food Conservation army.

The Food Administration issues from Washington each month an official bulletin called "Food News Notes" that goes to every librarian in the country and keeps them informed as to the points that are being stressed in connection with food, and shows them how they can help.

One of the most important services the libraries are rendering is keeping an up-to-date Food Bulletin Board, reaching the people with the food announcements they need. The information on this board must be timely, brief, and adapted to the locality.

All librarians are earnestly requested to call attention to articles on food appearing in current periodicals, and to have on hand all pamphlets bearing on pertinent food problems. Food Administration bulletins that are out of print may be consulted in the library.

The card catalogue of recipes has proved a never failing source of interest and in many instances local recipes have been produced which have attained great popularity. Almost universally, whenever a library has an auditorium, food talks or food story hours have been given and in some instances food demonstrations have been conducted.

Food Conservation exhibits have been arranged in hundreds of libraries and have been placed in food shows under their auspices.

Through the coöperation of the schools, posters and food compositions have been obtained for display and valuable maps have been reproduced.

Before 1919 it is hoped that every library will have a card index of all agencies in the town doing war service work.

A few quotations from recent reports and letters will give some idea of how this work is progressing.

New Mexico. "I've been talking—and I'm a plain little backseat person—talking in schools, at Red Cross rooms, at evening meetings, to groups of from twenty to over two hundred! I've been way out thirty miles from a railroad stirring them up to *want* information. Now I'm on my way back and I'm going to send my posters and pamphlets out into those far away corners of the state where the weekly trip to church, maybe, or the once in a long while to the "store" is the only outing the house mother has—and the news the children bring from school is the topic of the day's conversation.

Wyoming. "In connection with my trip about the state, I visited and personally interviewed practically every librarian in the state. I had a chance to observe personally the efforts the librarians are making in regard to library publicity for food conservation. I took two pictures of unique libraries in cabins, which will add to your list. I am also collecting essays and newspaper clippings and will send them to you at an early date, together with the results of the questionnaires which my faithful clerk sent out during my absence."

Michigan. "About fifty food posters made by the boys and girls of the Escanaba public schools have been exhibited in the Public Library recently. The ideas are remarkably good, and are very effectively carried out. Most of the posters are composite work—that is, the children in one room worked together on one poster. In most cases the children cut the letters for the posters. In connection with this display, the library had an exhibit of war cookery with the recipes. Women of the city who had used any war recipes successfully, were requested to send the recipes to the library with a sample of the result. The recipes are to be card-indexed and filed for reference. The library has distributed hundreds of leaflets containing war recipes and suggestive menus."

Massachusetts. "A number of organizations, educational, municipal, and political, are responsible for the food exhibits of the Boston Public Library.

"Publicity is obtained through the newspapers and through the issue of a small leaflet with each book sent out from the delivery section of the library.

"In the exhibit room there is always in attendance a salaried woman trained in home economics. A leaflet furnishes a list of substitute foods with the price at which they may be bought at the time in Boston, and, in a general way, where they may be procured.

"There was very little advertisement of the exhibit at first, still the average daily attendance from January 29 to March 14 was, by actual count, 676."

The coöperation of the librarians has been nothing short of marvelous, and undreamed-of possibilities for popularizing and spreading reliable information have been opened.

“MY FRIEND IN FRANCE TELLS ME—”

One of the handiest ways to start an argument these days is to mention the French food supply. Some loyal conversationist says that he—or she—can not bear to look at wheat because of the terrible need in France, which has given more in lands, home, man-power and general sacrifice than any other nation, in this war for a free world.

Then the knowing one pipes up: “But you are misinformed. There is no food shortage in France. I get a letter almost every week from a friend in France, and he says that wherever he went, whether in Paris or in the small towns, there was always plenty of food—he says, in fact, that he never had such meals in his life.”

Then the argument begins, and because there are only official statements to combat the one who has the actual eye-witness letters, the victory apparently lies on that side, and the inevitable inference is that there is something queer about the request that is being made of us to “send food across the sea.”

There are so many of these “friends-in-France” people that what they say really counts, especially as they are relating apparent facts with perfect sincerity. So it is a good thing to line up the two sides of the question and strike a balance.

France never did produce all the wheat she used. In 1914 her production was about 82 per cent of the normal consumption. In 1917 the production was but 45 per cent of the normal production (and this, remember, never was enough for her *consumption*).

After deducting the amount necessary for seed, it is estimated that the 1917 production will be one-third France’s needs.

The next salient fact is that France’s normal needs have been figured on a different basis from ours. Food never has been wasted in frugal France. Consequently, her normal food consumption always has been very close to her actual food necessities. Whereas we in the United States have always been so lavish with food that we could easily cut our normal consumption in two and still actually eat as much as ever—by the aid of such adjuncts as careful management, war gardens, and the like. But the French people cannot increase supplies by war gardens, for most of them already grew their own garden supplies.

The next fact to consider is that England has been lending France large amounts of food, and nobody disputes the fact that England is underfed. Yet neither would any thoughtful person imply that England

would be heedless enough to lend food at this time to a nation whose need was less than her own.

Then add this to the list: France, last year, kept her food supply (production plus exports) up to about 85 per cent of normal. This year it has fallen to between 60 and 70 per cent. The shortage is, of course, uneven, and much greater in some commodities than in others. Of milk, for instance, there is only one-third the normal supply.

Perhaps most significant of all is the fact that the ration of the French soldiers has twice been cut. We all know that the soldier's ration is never lowered until the danger at home from food shortage far outweighs the damage the same lack can do at the front.

Now these are actual facts. There is no guesswork about them. In the face of them we *know* that France is far below her normal food supply, and below a normal infinitely closer to her actual necessities than our normal ever has been. So it must be true that there is some explanation of those letters from "my friend in France."

Perhaps one single instance may throw light on all of them. Among the stories that come over, there is frequent mention of meat—they had three, or even four meat courses at the hotel, or something of that sort. And it is made the basis of many a letter and many a comment that "France really has loads of food after all."

The fact about the meat situation is that the glut of meat indicated an actual shortage—a shortage of fodder. There was not enough to feed the cattle; so they killed them and ate them, instead of letting them waste away. As they have little in the way of cold storage facilities, the meat could not be held over, and this created a temporary glut on the market. The situation was quite comparable to the present situation here, when the meatless days were temporarily discontinued because lack of transportation caused meat to pile up at seaboard till it became a conservation measure to eat it rather than store it up. But now France is on a ration of a pound of meat a week, and this includes horse flesh.

Some of us may wonder why we, who are the great food proprietors of the world today, are asked to conserve, at different times, on wheat, meat, fats, and sugar, while France which we are practically feeding, has only been rationed in wheat, meat, and sugar.

Well, meat includes a large amount of fat, so rationing on meat means, to a large extent, rationing on fat, too. As for dairy fats, when a nation's milk supply is one-third normal, it is beside the mark to ration on those, for the complete lack of them provides an automatic rationing.

Wheat flour is being milled at 90 per cent in France. We, in the United States, have gone up to 74 per cent, which is considered by our experts the limit for safety. And that heavy, rough 90 per cent flour is being mixed with substitutes to an even greater extent than we are asked to mix our fine white flour. Not even the most earnest writers of the "plenty-of-food-in-France" letters claim that this bread is palatable. This is a far more serious affair for France than it would be for us, as bread has always formed 52 per cent of the French diet, while 39 per cent is the maximum with us. As for sugar, months ago France was rationed $1\frac{1}{16}$ pounds per month per person.

Those facts show conclusively that wheat, meat, milk (and consequently dairy products), and sugar have been hard hit. But France still has one thing that gives her an advantage over all the world, and that is the French cook—not necessarily the great French chef,—but just the everyday housewife or small bake-shop cook. These can, literally, produce a feast on what we throw away; and as they have been accustomed for generations to make the most of everything, they have the advantage of not having to experiment with new methods of conservation to anything like the extent necessary here or in England. For instance, we are now being advised to find a use for the outside leaves of lettuce. But the French housewife always has used all the lettuce leaves, only she has a system superior to ours. She does not lop off whole heads of lettuce, as we do; but when it begins to mature she picks off the larger leaves before they become coarse and broken. And as the rest develops, the leaves are plucked, this method making the whole plant go much farther than it would with us. Another instance of how things are done is shown in the matter of confectionery of which the French have always been very fond. Away went the sugar supply quite early in the game, but the family confectionery remained. How? The housewife took numberless small fruits such as grapes, pears, and especially a small and very sweet French plum, and simmered them, all together without sugar very, very, slowly, till a sweet paste remained which was made the basis of confectionery.

That sort of frugality, and the French cook, will guarantee delectable meals in France (except as far as bread goes), until the meals themselves are reduced to the vanishing point.

But there are still one or two points to be considered in the matter of those letters from France. One is the fact that they are pretty sure to be from the portions of Northern France where the greatest war activi-

ties are going on, and where soldiers, officers, and civilian workers, French and foreign, are gathered. That means that the most immediate food demands as well as the most money are gathered there, and that what one sees there cannot be taken as indicative of the general situation. Unrationed food naturally flows to the best markets, which means the places where the most insistent demands and the highest bids are made for luxuries. In addition to this it is axiomatic that wherever a nation's soldiers are gathered, there will be the best of its food.

And now the last point, and here we reach what has been more responsible than anything else for the "plenty-of-food" letters. This is the volatile French temperament, in which hospitality and pride figure so largely, and produce a curious result when exhibited against the background of today's events. The Frenchman adores his land and gladly dies for it. He knows that the Hun menace is no more serious than the "hun-ger" menace. Yet he cannot forbear making the dashing French "gesture" in the eyes of the world—the result of his belief that the most admirable man is he who can not merely refrain from outcry over a death wound but who can sing a gay little song, even though the end is hastened thereby. It is the French spirit, and the world would be sad without it, even though it was one of the contributing causes that made France delay anything like general rationing as long as possible, and that makes her at times unduly optimistic regarding the food situation.

Anyone who is inclined to complain of this because it is ourselves who must make up the food deficit, might better acknowledge it as our opportunity partly to repay France because, for nearly four years, she has, with her allies, held the breach against our now avowed foe, and will continue to do so while we are completing our preparations.

France is not starving—thanks to her great resourcefulness and to our honor. France must not starve—must not even be weakened by hunger—as long as any measure of sacrifice on our parts can prevent it.

Vive la France! is not merely the slogan of a patriotic race. It is the world's cry of love for art and beauty. And we are willing to pay that debt of love by lifting from France's shoulders the brunt of the food burden at least.

A STUDY OF YEAST BREAD WITH SUBSTITUTE FLOURS¹

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The first problem undertaken in the experimental laboratory was the use of the wheat flour substitutes in yeast bread. A preliminary study at the University of Kansas, published in *The American Food Journal*, December 1917, seemed to indicate that while breads containing $33\frac{1}{3}$ per cent of substitute were possible with some flours, only 25 per cent was advisable in general if the quality of the bread as regards texture and lightness was to be kept at all like normal bread.

The first experiments were designed to check these results. Plates I, II, and III show the effects of increased proportions of substitutes and in the main confirm the results previously obtained at the University of Kansas. However, in general, the breads with the larger percentages, $33\frac{1}{3}$ and 40 per cent, made in this laboratory, were usually better in quality than those previously made and shown in the article mentioned, perhaps due to increase in skill acquired through extended experience.

The results reported in this paper show: (1) the proportions which have been used to produce breads of good, normal quality; (2) faults which may occur and some tentative explanations as to their cause.

Throughout the experiments, it has been the aim to discover simple principles and state these clearly with the hope that the conventional recipes may be to some extent replaced.

Basis for Proportions. The relation between the formulae for the different breads is more easily understood if all are based on a common unit. Type recipes for bread are sometimes given in amounts to make loaves of standard weight, the amount of liquid indicating the size of the loaf. For example: (1) $\frac{3}{4}$ cup liquid, yields a loaf weighing approximately 16 ounces; (2) 1 cup liquid, yields a loaf weighing approximately 20 ounces; (3) $1\frac{1}{4}$ cup liquid, yields a loaf weighing approximately 24 ounces; varying with amounts of fat, sugar, salt, and yeast; with loss in mixing, in kneading, and in baking.

We have used the 1 pound loaf as the experimental loaf and the following type recipes represent proportions for breads containing different amounts of substitutes.

¹ The experimental work recorded here was carried out by Harriet Edgeworth and Ethel Loflin. Similar work is at present in progress in the same laboratory under the direction of the Office of Home Economics of the United States Department of Agriculture.

Per cent of Substitute. In accordance with the rules of the Food Administration, the per cent of substitute is figured in terms of the *weight* of the total dry flours. When potato is used only one-fourth of its weight can be counted as dry substitute because of its large water content. The latter must be taken into account also in the liquid required to make the dough.

Materials. *Liquid:* Milk was used in all cases. *Flour:* Wheat flour was the same throughout the experiments—95 per cent milling of a 74 per cent extraction. Substitute flours were obtained on the local market and in several different lots. There was sometimes an obvious difference in quality, such as in the fineness of barley flours but these differences did not seem to affect the results when equal *weights* of the different flours were used. *Sirup* was used instead of sugar to conform to Food Administration requests. *Yeast:* For convenience in laboratory work, compressed yeast only was used. This was obtained from a nearby market and no doubt varied according to market conditions.

All materials were carefully weighed. Methods of manipulation were uniform and temperatures of both rising and baking were constant. It is of interest to note that the investigators through extensive preliminary experiments had learned to produce practically exact checks on each other's work in duplicate experiments, so that the personal factor was almost entirely eliminated.

Constants and Variables. The same amounts of yeast, salt, syrup, and fat have been used in each case. The amounts of fat and sugar are such as conform to the regulations of the Baking Division of the Food Administration. The liquid is constant except when potato is used, allowance being made for the water content of the latter. The total weight of the wheat flour and substitute was sometimes constant and sometimes variable; their relative proportion varies with the changing percentages of the substitutes.

The *measures* vary with the percentages and kinds of flours used.

The variations in proportions due to the use of potato are shown later.

Sponge: The milk was scalded and reduced to the proper temperature. Three variations were made in mixing: (a) sponge using wheat flour only; (b) sponge using substitute only; (c) sponge using mixed flours. The modification in (b) was suggested on the theory that all the strength of the wheat gluten was needed to carry the substitute and that it should not be subjected to the softening influence of the yeast.

Good breads have been secured by all methods. When the products were poor there were other factors involved which were of greater importance. We have therefore not been able to form an opinion as to the relative merits of the three processes. For convenience mixing the wheat flour and substitute is recommended.

*Amounts of materials used in making one pound loaves (approximately)
when the weight of the flour was constant*

Constants

MEASURE	WEIGHT	
	grams	ounces
$\frac{1}{2}$ cup liquid (milk).....	183	6 $\frac{1}{2}$
$\frac{1}{2}$ -1 cake yeast.....	6-12	
1 teaspoon salt.....	4	$\frac{1}{8}$
1 tablespoon sirup.....	20	$\frac{5}{8}$
1 teaspoon fat.....	5	$\frac{1}{8}$
Wheat flour and substitute.....	284	10

Varying proportions of wheat flour substitutes in the same total weight

Twenty-five per cent substitution by weight requires 7 $\frac{1}{2}$ ounces wheat flour to 2 $\frac{1}{2}$ ounces substitute.

Thirty-three per cent substitution by weight requires 6 $\frac{2}{3}$ ounces wheat flour to 3 $\frac{1}{3}$ ounces substitute.

Forty per cent substitution by weight requires 6 ounces wheat flour to 4 ounces substitute.

Approximate equivalents in measures

	25 PER CENT SUBSTITUTION	33 PER CENT SUBSTITUTION	40 PER CENT SUBSTITUTION
	cups	cups	cups
Wheat flour.....	1 $\frac{7}{8}$ +	1 $\frac{5}{8}$ +	1 $\frac{1}{2}$
And any one of the following:			
Barley flour.....	$\frac{7}{8}$ +	1 $\frac{1}{4}$ +	1 $\frac{1}{2}$
Buckwheat flour.....	$\frac{1}{2}$	$\frac{3}{4}$ -	$\frac{7}{8}$ +
Cornflour.....	$\frac{5}{8}$	$\frac{7}{8}$	1
Cornmeal (coarse).....	$\frac{3}{4}$	$\frac{3}{4}$ -	$\frac{7}{8}$ +
Oats, ground rolled.....	$\frac{3}{4}$	1	1 $\frac{1}{8}$
Rice flour.....	$\frac{1}{2}$	$\frac{3}{4}$ -	$\frac{7}{8}$ +

Dough. Different amounts of flour were used in making the doughs. (a) *Constant weight for each flour* substitute used gave doughs of differing stiffness. (b) *Varying weights of flour* were used to make doughs as nearly like a wheat flour dough as practical tests could determine. (c) *Varying weights of flour* were used to make doughs of a so-called proper consist-

ency which was thought might be right for each substitute. The constant weight used in (a) was based on the amount of wheat flour alone which would be necessary (theoretically) to make a dough of proper consistency; that is, $\frac{3}{4}$ cup of milk (183 grams or $6\frac{1}{2}$ ounces) would require $2\frac{1}{2}$ cups wheat flour (284 grams or 10 ounces). The amounts of flour actually used when made according to (a), (b), and (c) were as follows:

Without potato

	(A)	(B)	(C)
	grams	grams	grams
Barley.....	284	232	251
Buckwheat.....	284	284	291
Cornflour.....	284	259	278
Cornmeal.....	284	253	277
Oats, ground rolled.....	284	246	250
Rice.....	284	256	284

With potato

	(A)	(B)
	grams	grams
Barley.....	303	281
Buckwheat.....	303	306
Cornflour.....	303	306
Cornmeal.....	303	281
Oats, ground rolled.....	303	256
Rice.....	303	306

With the constant weight of flour used in (A) buckwheat, cornmeal, and cornflour were "sticky" doughs—that is, they could be kneaded but would stick to the board and hands. They required deft handling. Barley, rice, and oat were stiffer doughs, and barley and oat became decidedly stiffer on standing. The oat and cornmeal doughs felt granular, whereas the buckwheat and to some extent the rice were soft, velvety, and rather elastic. The rice flour dough was most like a wheat dough.

The variations in (b) and in (c) occurred when doughs were made according to judgment either as to wheat flour consistency or to so-called proper consistency. When a constant amount of flours was used, as in (a), uniform loaves of good texture were obtained. When flours were varied according to judgment, as in (b) and in (c), the loaves frequently varied greatly in volume, and texture.

It will be noted that in the series without potato four of the cases in (c) were almost the same as (a); and in the series with potato three of the cases were practically the same as (a). This shows that when judgment was relied on for a standard consistency of dough, the amount of flour used in a number of cases was practically the same as that used where the amount of flour was kept constant.

Risings. As before stated, a sponge was invariably used, with an hour allowed for the process. The dough was sometimes formed into the loaf after having doubled in bulk and sometimes cut down after it had once doubled and was again allowed to double its bulk. The loaf was allowed to fully double its bulk in most cases because it had been noticed that substitute breads do not rise in the oven. The total number of risings therefore was in some cases three and in others four. The evidence is fairly conclusive that better results are obtained by cutting down the dough at least once, giving a total of four risings including the sponge. This agrees with previous experiments with wheat flour and is a common practice with the commercial baker. Cutting down seems to give a lighter loaf, a finer and more uniform grain and a better texture.

Baking. The loaves do not rise in the oven even if a low temperature is used at first. They tend to fall if the temperature is not high enough to set the loaf in the first fifteen or twenty minutes. The best oven temperature seemed to be 205°C. (400°F.) for this first period and then slightly reduced to 195°C. (380°F.). A pound loaf required forty-five minutes for baking. Wheat flour loaves of similar size and shape were baked in thirty minutes. Great care is necessary in handling the light loaves. A faulty crack in the crust may result in the escape of gas with visible falling during baking. This is accentuated if the loaf is moved during baking.

THE USE OF POTATOES WITH WHEAT FLOUR SUBSTITUTES

The improvement in quality of yeast bread when mashed potato or even potato water is used has long been known practically and has been proved experimentally. Since these substitute breads were somewhat dry and differed in texture from the wheat flour breads, the proportions were modified to permit the use of mashed potatoes. When potatoes alone were used as the substitute not even as large an amount as 20 per cent (on the 4:1 basis) was successful in the experiments tried. If more was used the potato taste was pronounced and the texture even less

desirable. In the attempt to secure the good effects of the potato and to avoid the bad results, it was decided to limit the proportion of the potato to one-fourth (on the dry basis 4:1) the weight of the total substitute. That is, in a 40 per cent bread containing 10 ounces of flour, 4 ounces of this would be substitute. Of this substitute 1 ounce is the dry matter in 4 ounces ($\frac{1}{2}$ cup) of mashed potato. No experiments have been carried out to show whether this proportion is the optimum but it is at least a good workable one.

Variation in Liquid. Because of the liquid in the mashed potato amounting to three-fourths of its weight it was necessary to reduce the amount of liquid added. This is illustrated below:

Proportions of materials used to produce bread containing 40 per cent substitutes, with and without potato

a. Without potato

$\frac{3}{4}$ cup (178 cc.) liquid
6 ounces wheat flour
4 ounces substitute flour

b. With potato

$\frac{3}{8}$ cup (95 cc.) liquid
6 ounces wheat flour
3 ounces substitute flour
4 ounces potato (1 ounce or $\frac{1}{4}$ total weight counted as part of the substitute)

Approximate amounts by measure

	40 PER CENT BREAD WITHOUT POTATO		40 PER CENT BREAD WITH POTATO 10 PER CENT POTATO 30 PER CENT FLOUR SUBSTITUTE
	<i>cups</i>		<i>cups</i>
White flour.....	$1\frac{1}{2}$	White flour.....	$1\frac{1}{2}$
And any of the following:		Potato.....	$\frac{1}{2}$
Barley.....	$1\frac{1}{2}$	And any of the following:	
Buckwheat.....	$\frac{7}{8}+$	Barley.....	$1\frac{1}{8}$
Cornflour.....	1	Buckwheat.....	$\frac{5}{8}$
Cornmeal (coarse).....	$\frac{7}{8}+$	Cornflour.....	$\frac{3}{4}$
Oats, ground rolled.....	$1\frac{1}{8}$	Cornmeal (coarse).....	$\frac{5}{8}$
Rice flour.....	$\frac{7}{8}+$	Oats, ground rolled.....	$\frac{7}{8}-$
		Rice flour.....	$\frac{5}{8}$

The fat, sugar or syrup, salt, and yeast are constant.

Counting $\frac{3}{4}$ the weight of the potato as liquid makes the total liquid in the potato bread approximately the same as that in the bread without potato—3 ounces or 85 grams + 95 grams = 180 grams instead of 178 grams. The measures of the weights used above will vary according to the substitute used.

Variation of Method. Because of the stimulating effect of the potato water (liquid in which the potatoes have been cooked) it is desirable to use this as all or part of the liquid. If milk only is used the mashed potato should be put in the sponge. The addition of all of the potato at this point may make such a stiff mixture that only one or two tablespoons of flour can be added. Even then the mixture is so stiff that the question arises as to whether the best conditions for growth have been provided. We have no data on this point.

The only variations made in the method are those which were necessary to incorporate the new material. Dough containing potato softens considerably during rising and more of the flour should be reserved for the kneading process.

The effect of adding the potato is very plainly shown in the accompanying plates.

The 40 per cent bread with potato (Plate IV) is of much better and more uniform quality than 40 per cent without potato (Plate III); 50 per cent and even 60 per cent with potato (Plate IV) are much better than the 40 per cent without. The faults observed in the higher per cent breads have been corrected by conforming to the principles developed in this paper but the photographs have not yet been taken of the perfect loaves.

Conclusions. It has been shown that the weights of the other ingredients being constant, the total weight of the wheat flour and of each substitute may also be constant. However, later work indicates that it may be more desirable to modify this rule. The six substitutes used seem to fall into two groups. One group (barley, oats, and rice flour) made stiffer doughs than the second group (buckwheat, corn flour, and corn meal), therefore less total flour is required to make good breads for the first group than for the second. That is, on the same basis of proportions, 10 ounces of flour will make a good bread of the substitutes in the first group, while $10\frac{1}{2}$ ounces is a safer amount of total flour for those in the second group. For the inexperienced, using a constant weight of $10\frac{1}{2}$ ounces of total flour whatever the kind or percentage of substitute used is probably the safest procedure.

Some of the results indicate that such faults as cracks, large holes, and poor texture may be due to the number and length of the times of rising as well as to the consistency of the dough. The writer is convinced that the quality is materially improved by the use of at least four rising periods: (a) sponge, sixty minutes; (b) dough, first rising; (c) dough, second



Buckwheat

Cornflour

Rice flour

Rolled Oats
Ground

Cornmeal

Barley flour

I. YEAST BREADS

25 per cent substitute; 75 per cent wheat flour



Buckwheat

Cornflour

Rice flour

Rolled Oats
Ground

Cornmeal

Barley flour

II. YEAST BREADS

33 $\frac{1}{3}$ per cent substitute; 66 $\frac{2}{3}$ per cent wheat flour



Rolled Oats
Ground

Cornflour

Buckwheat

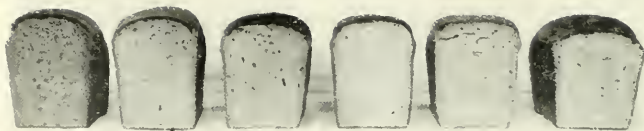
Rice flour

Cornmeal

Barley flour

III. YEAST BREADS

40 per cent substitute; 60 per cent wheat flour



Buckwheat

Barley

Cornflour

Rice flour

Rolled Oats
Ground

Cornmeal

IV. YEAST BREADS

31 per cent substitute; 9 per cent potato (1:4 basis); 60 per cent wheat flour



Buckwheat

Cornflour

Rice flour

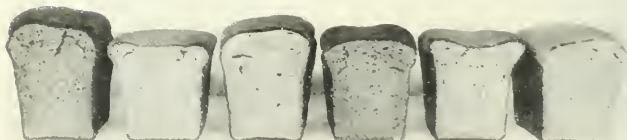
Rolled Oats
Ground

Cornmeal

Barley flour

V. YEAST BREADS

38 per cent substitute; 12 per cent potato (1:4 basis); 60 per cent wheat flour



Buckwheat

Cornflour

Rice flour

Rolled Oats
Ground

Cornmeal

Barley flour

VI. YEAST BREADS

48 per cent substitute; 12 per cent potato (1:4 basis); 40 per cent wheat flour

rising; (d) loaf. A discussion of these points is beyond the scope of this paper.

It has been interesting to note that the quality of the yeast was a very important factor. Some of our poor results seemed to be due to a poor quality of yeast. A good vigorous yeast seems essential to success in making breads of the wheat flour substitutes, since gas is visibly lost during the process. The yeast used in these experiments was obtained from a local market and represents the kind of variation in quality with which the housekeeper must contend. This quality is probably affected more by the length of time and the conditions under which it has been kept in the store than by any other factor.

Emphasis must be laid also on the method of baking since it seems important that the crust should be formed within fifteen minutes after it is put in the oven. A longer time of baking must be allowed.

These experiments have been carried on under great pressure and with many and varied interruptions. The conclusions are not as definite as we should like but many important principles seem to have been shown. It is hoped that this preliminary report may be of value to the trained worker and may help to explain the difficulties and the poor results which are reported from so many parts of the country. When trained people working under carefully controlled conditions find such different products resulting it is not surprising that the untrained worker not knowing even the possibility of variation in conditions should be troubled by inexplicable results.

It has been shown that a difference of a few grams in the amount of flour used may cause a crack at the top of the loaf. The weight of the flour measured in a cup may vary greatly and such a difference as the above could occur, when measures are used, with no suspicion of the variation. Experience gained through the trial and error method may make it possible to judge the consistency of the dough correctly but that may take much time and material, since the character of these doughs is so different from those with which we have been familiar. This offers one of the best examples of the advantage of using definite weights and controlled conditions in food preparation.

THE OFFICE OF HOME ECONOMICS AND THE UNITED STATES FOOD ADMINISTRATION

JEAN G. M^{AC}KINNON*Office of Home Economics, United States Department of Agriculture*

Like many other Government Bureaus and Offices, the Office of Home Economics found its quarters too small for the emergency war work, and last fall began to plan for larger quarters. One phase of the work which had grown especially, was the small Experimental Kitchen, which the Office had established several years ago. Instead of the little room, which in normal times seemed entirely too small for the work, the Experimental Kitchen now occupies much better quarters in a two-story building across from the West Wing of the Agricultural Building. When the Food Administration felt the need of a kitchen for experimental work, it was possible for the Office of Home Economics with its greatly increased working space, to offer to share its Kitchen. This new kitchen occupies two-thirds of the floor space of the first floor of this Branch of the Office of Home Economics and if the need continues will probably want to spread itself still further. At present the space is 50 feet long and 18 feet wide and the Office of Home Economics and the United States Food Administration have equipped 25 feet of this with working equipment to accommodate four trained workers.

The kitchen has many plans for experimental cookery work, but since February its entire attention has been devoted to wheat substitutes in yeast breads and quick doughs and batters. This work on substitutes was done independently by both the Food Administration and the Office of Home Economics, the Office of Home Economics always having the average housekeeper in mind, while the Food Administration considered the institutional as well as the home phase of the problem. The effort has always been to have the work very accurately done and repeated many times as a check. Well trained women have been at work in the kitchen and in order to insure as great accuracy as possible, this kitchen has been viewed as other war activities, and has not been open for general inspection.

The results of the work in the kitchen have appeared in many forms. The popular coöperative leaflets known as the "Food Leaflets" give some of the material worked out in this kitchen by the Office of Home Economics. Many circulars and cards have been issued separately by the

Food Administration and the Office of Home Economics, and whenever these publications consider the use of wheat substitutes, the work has been done in this kitchen. Recipe material for newspapers and magazines supplied by the Publicity Bureaus of both the Food Administration and the Department of Agriculture, has been prepared from the data of the Experimental Kitchen. There will undoubtedly be variations in results obtained by other Home Economics Laboratories as compared with the data of the Experimental Kitchen. Such variations have always been experienced wherever wheat flour was concerned, due partly to the difference in milling, and partly, perhaps, to lack of standardization, and of course the same situation will arise with substitute flours.

Another phase of the work of the Experimental Kitchen is shown in the use made of the other 25 feet, which has not been devoted to the Office of Home Economics and the Food Administration. This is a coöperative project between the Office of Home Economics and the Woman's Sections of Extension North and West, and Extension South. It is equipped as a Demonstration Laboratory to accommodate sixteen workers and will afford the Extension Departments an opportunity to call in their special demonstrators from any section in the country and instruct them in the latest Food Conservation work. This coöperation, in one room, of the Extension Departments, Office of Home Economics, and Food Administration should be a most effective way of reaching the needs of the women of this country. The Office of Home Economics has always felt dependent on the Extension Offices for the distribution of their work and for inspiration and suggestions of work needed in the field as seen by the field worker as she comes in contact with the people. Just as the Extension Departments are invaluable to the Office of Home Economics, they must be equally so to the Food Administration, especially as they go out and spread the Food Administration messages.

It has seemed especially fortunate that the enlarged Experimental Kitchen became a possibility at a time when greatly needed. When the war emergency is passed, it hopes to be able to contribute largely to cookery problems, but at present it is glad to do anything which will aid either the Food Administration or the Extension Department in reaching the people and in solving any of the problems of "war cookery."

WHEATLESS CAKE AND SHORTCAKE

*From the Experimental Kitchen of the United States Food Administration
and the Department of Agriculture*

"BUTTER" CAKES

Different combinations may be made using this general rule: $\frac{1}{2}$ cup fat, $\frac{2}{3}$ cup sugar, 1 cup sirup, 3 eggs, $\frac{3}{4}$ cup milk, 6 teaspoonfuls baking powder, $\frac{1}{2}$ teaspoon salt, 10 ounces flour, with the addition of chocolate, (using less fat), spices, raisins, or nuts. One rule is given.

Chocolate cake

$\frac{3}{8}$ cup fat	$1\frac{1}{2}$ cup rice flour (5 ounces)
$\frac{2}{3}$ cup sugar (about $4\frac{1}{2}$ ounces)	$1\frac{1}{4}$ cups barley flour (5 ounces)
1 cup sirup (about $11\frac{1}{2}$ ounces)	6 teaspoons baking powder
3 eggs	1 teaspoon cinnamon
$\frac{3}{4}$ cup milk	1 teaspoon vanilla
1 teaspoon salt	2 squares chocolate

Cream the fat, sugar and egg yolk. Add the sirup and mix well. Add alternately the liquid, and the dry ingredients sifted together. Add flavoring and the chocolate melted with a small portion of the sirup. Fold in well beaten egg white. Bake about one hour starting in a moderate oven (350°F. or 177°C.). After twenty minutes raise the temperature slightly (to 400°F. or 205°C.).

In place of the barley and rice flour $1\frac{2}{3}$ cups of buckwheat (8 ounces) and $\frac{1}{2}$ cup of ground rolled oats (2 ounces) may be used; or $3\frac{3}{4}$ cups of barley flour (10 ounces); or 1 cup of rice flour (5 ounces) and 1 cup of buckwheat flour (5 ounces).

SHORTCAKES WITHOUT WHEAT

Rice Flour Shortcake

$2\frac{1}{4}$ cups rice flour
6 teaspoons baking powder
1 teaspoon salt
1 tablespoon sugar
6 to 8 tablespoons fat
1 cup liquid

Barley Shortcake

4 cups barley flour
6 teaspoons baking powder
1 teaspoon salt
1 tablespoon sugar
4 to 6 tablespoons fat
1 cup liquid

Mix the dry ingredients, cut in the fat and add liquid. For individual servings, place dough on slightly floured board, pat to $\frac{3}{4}$ inch thickness and cut as for biscuit. For family sized portions, place dough in well-greased pan and pat to desired thickness. Bake in a hot oven.

EDITORIAL

Children's Food and the Food Administration. There seems to be a more or less general impression that the children of the nation must be defended from the rulings of the Food Administration. This was brought out at the meeting of the N. E. A. at Atlantic City, where from the public platform women were urged to violate such precepts, in the interest of the child's welfare, and in resolutions lately sent by certain medical associations to the Food Administration, protesting against its attitude.

This is an entire misunderstanding of the Food Administration's standpoint. When it was said that "wheat is not today a food for strong men and women," it was expressly stated that it might be left for "invalids and children." From the very beginning of Food Administration propaganda, it has been urged over and over again that every precaution be taken to feed the children wisely and well. No sacrifice of wholesome food for the children has ever been asked or suggested. The first home card said, "The children must have milk." "Do not limit the plain food of growing children." "Butter is essential for the growth and health of children."

For the majority of children, unless the change is made too rapidly, there is no reason to suppose that the other cereals are not just as wholesome as wheat. Change from fine flours to coarse may be unwise. Any experiments with the diet of the young child should be made carefully, with few changes at a time. But, if other cereals do not agree with it, there is no violation of any Food Administration ruling in giving wheat.

The True Way to Stop the Use of Foodstuffs in Brewing.—There have been criticisms of the Food Administration because it has not prohibited the use of grain for brewing. Many people have even refused to coöperate in its conservation measures until this was done.

The following statement from the Food Administrator answers these critics.

As to the discussion over the suppression of brewing, I wish to say emphatically that from a strictly food conservation point of view I should like to see the use of foodstuffs suppressed in all drinks hard and soft. This is not, however, the whole story. We stopped distilling a year ago. There is a long supply of whiskey, gin, and other 20 to 40 per cent distilled drinks in the country. We have reduced the consumption of foodstuffs in brewing by 30

per cent and reduced the alcohol content of beer to 2.75 per cent. If we stop brewing the saloons of the country will still be open but confined practically to a whiskey and gin basis. Any true advocate of temperance and of national efficiency in these times will shrink from this situation, for the national danger in it is greater than the use of some 4,000,000 bushels of grain monthly in the breweries. If the American people want prohibition it should prohibit by legislation to that end and not force the Food Administration to the responsibility for an orgy of drunkenness. It is difficult to get drunk on 2.75 per cent beer; it will be easy enough if we force a substitution of distilled drinks for it.

It has not been found feasible to commandeer distilled spirits in the country for re-distillation into munitions alcohol, because of technical difficulties and the fact that commercial alcohol can be obtained not only abundantly but on a much cheaper basis than could be had through such commandeering and re-distillation of potable spirits.

The Food Administration has gone as far as it can towards temperance without precipitating a worse situation. If the American people or Congress will stop the sale of distilled liquors, the Administration will find no difficulty in stopping brewing.

What is Wheat? Many people do not yet understand that graham and "whole wheat" flour are wheat—partly perhaps because these were allowed as partial substitutes for flour in the 50-50 purchases. Some even see no fallacy in the school boy's "waving fields of macaroni that adorn the Italian landscape." Though by this time nearly every one must be free from this delusion, "what is wheat and what is not" still puzzles some; this statement from the Food Administration may not be out of place.

IF YOU EAT—THESE—YOU EAT WHEAT

White Wheat Bread, from flour refined from the starchy center of the wheat kernel.

Whole Wheat Bread, from flour made from the starchy center and some of the outer brown layers (bran) of the wheat kernel.

Graham Bread and Crackers, from flour containing all the kernel, including the bran.

Macaroni, Spaghetti, Noodles, from wheat flour.

Wheat Breakfast Foods, sometimes not advertised as wheat products, made from the whole or part of the wheat kernel.

Victory Breads, 75 per cent wheat.

IF YOU EAT—THESE— YOU EAT NO WHEAT

Potatoes, Oatmeal, rice, hominy, barley, tapioca, and 100 per cent substitute bread made from corn, oats, barley, or other wheat substitutes; usually made with baking powder, or soda and sour milk, instead of yeast and often known as "Quick Breads."

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Food in War Time. By GRAHAM LUSK. Philadelphia and London: W. B. Saunders Company, 1918, pp. 46. \$0.50. By mail of the Journal, \$0.55.

Any book of Dr Lusk's will be eagerly accepted. This booklet of less than fifty pages is made up of three parts, the first entitled "A Balanced Diet," the second "Calories in Common Life," and the third "Rules for Saving and Safety." Of these the first and last will appeal most to the general reader. The last two parts of the book were given as a paper at the meeting of the Association of Agricultural Colleges and Experiment Stations at Washington, Nov. 1917.

The "Balanced Diet" explains why a diet used by the southern Italian consisting of corn, greens, and oil, has proved "balanced," and the need for vitamins is clearly shown. The importance of milk and potatoes in the diet is emphasized, and the need for meat discounted. The figures quoted on page 19 from the British Commission showing why meat should be more expensive than milk, and suggesting certain regulations that might increase the dairy business and so lower the price of milk at the expense of meat, are illuminating.

The second section, "Calories in Common Life," will appeal to the teacher of dietetics as an available source of material on basal metabolism. In the last paragraph of the book Dr. Lusk wonders why educated people content themselves with so little knowledge of calories and the energy requirement of the body. The average person will not wonder at them, however, when he is called upon to read sentences like the following: "Phenomena of life are phenomena

of motion. These are maintained at the expense of chemical energy liberated in the oxidative breakdown of carbohydrate, fat and protein." But that this will be a source of information for the go-between who will try to put such material into popular form cannot be doubted. It is to be regretted that for them and for the dietetics teacher, Dr. Lusk has not given source references for such work as that of DuBois' method of measuring surface area, alluded to on page 26.

The "Rules for Saving and Safety" at the end of the book, make an excellent popular summary of the practical applications to be made from the rest, put definitely, and in language that will appeal to everyone.

MABEL T. WELLMAN,
Indiana University.

Successful Canning and Preserving. By OLA POWELL. Philadelphia: J. B. Lippincott Co., 1917, pp. 372. \$2.00. By mail of the Journal, \$2.15.

The author of "Successful Canning and Preserving" chose for the publication of her work the psychological moment when the nation was appealing to every loyal citizen for increased production and greater conservation of food.

This book is the outgrowth of much practical experience in one of the most practical forms of teaching—that carried on through extension classes. It is the outgrowth, too, of experience with vegetables and fruits that extends further back than the canning period. Miss Powell's first work was in connection with the famous school gardens of Cleveland. She is now Assistant in Home Demonstration Work in the Office

of Extension Work, South, of the United States Department of Agriculture, and for several summers has taught canning in Peabody College. She cans well, and she cans artistically, so that her products appeal to the eye as well as the palate—an important point when they are to be made the means of earning money. What is even more important in the writer of a book—she knows how to tell other people how to do it all. The book which is well illustrated in color and also in black and white, contains chapters on preparation and equipment, the selection of fruits and vegetables for canning, canning in tin and in glass, and on that operation so mysterious to the uninitiated, known as processing; there are directions for preserving; for making jellies, jams and marmalades; for pickling and for preserving meats. One of the most helpful chapters for the summer's work is that on drying.

Suggestions are given for forming canning clubs and for teaching particularly by that delightful outdoor method that has been so well worked out in the South.

The book will have a twofold usefulness. Housekeepers will find it helpful in their practical and patriotic labor of preserving the nation's precious supply of perishables, and teachers will learn from it the best methods of carrying the timely message out to the people.

CAROLINE HUNT.

Cooking and Sewing Outline. By FAY MORGAN RUDD AND FRANCESCA E. KAYSER. Birmingham: Tennessee Coal, Iron, and Railroad Company 1917, pp. 115.

The Department of Social Science of the Tennessee Coal, Iron, and Railroad Company has issued an outline of lessons in cooking and sewing which bears every indication of having been worked out by experience, and appears to be well adapted to the needs of children attending schools in the mining towns in which the company is interested. Complete outlines for the fifth, sixth, and seventh grades are presented, and

practical problems for lessons in cooking, sewing, and housekeeping are concisely stated.

CARRIE ALBERTA LYFORD,
U. S. Bureau of Education.

Wheatless and Meatless Menus and Recipes.

By ALICE BRADLEY, Miss Farmer's School of Cookery, Boston, 1918, pp. 38. Paper, 25 cents.

This is a pamphlet of thirty-five pages which discusses market orders, standards of nourishment, and food economy and the food budget, in an introduction of ten pages, followed by the wartime recipes. The weekly market order for four adults to cost \$10 and the weekly order for four adults to cost about \$16.50, each accompanied by weekly menus based upon the market order, is a valuable item.

Wheatless and Meatless Days. By PAULINE DUNWELL PARTRIDGE AND HESTER MARTHA CONKLIN. New York: D. Appleton and Company, 1918, pp. 225. \$1.25.

"Wheatless and Meatless Days" is another book prepared to help the housewives of America follow more intelligently the suggestions of the Food Administration.

It especially emphasizes simple attractive recipes that may be prepared at low cost.

It is prepared jointly by a successful and practical teacher of home economics and a housekeeper, and has added value for this reason.

The Corn Cook Book. War Edition. By ELIZABETH O. HILLER. Chicago: P. F. Volland Company, 1918, pp. 127. \$1.00 plus postage.

In response to the urgent plea "Save the Wheat," many cookery books especially emphasizing corn cookery have been published. One of these by an experienced teacher of cookery is this Corn Cook Book that "includes many substantial, inexpensive dishes made from corn, some of which are unusually attractive in appearance as well as taste." Each recipe is said to have been carefully tested.

PUBLICATIONS OF THE UNITED STATES FOOD ADMINISTRATION

Bulletins 1 to 15

- No. 1. Food Administration*.
2. Food Administration.*
3. Ten Lessons on Food Conservation.* Lessons 1 to 5.
4. Ten Lessons on Food Conservation.* Lessons 6 to 10.
5. Ten Lessons on Food Conservation.* Lessons 1 to 10. Available in every public library.
6. Creation of the U. S. Food Administration.
7. Present campaign.***
8. Commodity licensing.
9. Requa, M. L.—A few food problems.*
10. Grain and livestock.
11. Standard loaf.***
12. Wheat conservation problem.*
13. Food value of milk.
14. Why we must send wheat.
15. Food control a war measure.

Bakery Section

Report of Federal Trade Commission on bakery business in the United States.
 Instructions to bakery inspectors.
 Licensed millers of corn, corn starch, barley, oats and rice.

Hotel Section

Hotels, restaurants, dining cars, etc.
 General plan.**
 Steamship bulletins.

Library

Food news notes for public libraries, Nos. 1 to 5. (Monthly)
 Food conservation bibliography.

Licensing Division

Rules and regulations governing the importation, manufacture, storage and distribution, of food commodities for domestic trade by persons subject to license.
 Rules and regulations governing licenses manufacturing bakery products.
 Additional rules promulgated January 31, 1918.
 Amendments to licensing.

* Out of print.

** Obsolete.

Meat Division

Hog and corn ratios.*
 Prices of hogs.*
 Regulations of Packers' profits.

Religious Press

Bulletins for the clergy. 1. No. **
 Organizing the church for Food Conservation. **
 Religious press bulletins. (Weekly.) No longer issued.
 Cast thy bread upon the waters.*

Retail Merchants

Bulletins for retail merchants. 2. Nos. **
 Enlisting the food merchants. **
 Retail stores flyer. (From time to time.)
 To retail food merchants.
 Grocers give adherence.*
 To win the war.
 Seven ways to help the Food Administration.
 Directions for guidance of persons engaged in distributing food commodities at retail.

Speakers' Division

Speakers' bulletins

- No. 1. Saving subsistence.
2. An adventure in democracy.
3. Solving the problem.
4. Plan and scope.
5. The best answer.
6. Fifty-fifty.

Not available except for special request.

Trade and Technical Press Section

Weekly bulletin (discontinued).
 Food Conservation Notes. (Available only for members of the press)

General

Food Administration law.
 Food bill.
 Prussian system, by F. C. Walcott.
 Wheat needs of the world, by A. E. Taylor.
 Conservation and regulation in the United States, by C. R. Van Hise, 2 parts, part 1, published by the Food Administration, part 2, published by the University of Wisconsin, Madison, Wisconsin.*

*** Out of date.

Organizers' manual. National family pledge card campaign.**

Instructions to volunteer special representatives of the Food Conservation Division.**

U. S. Food Administration Exhibit. Why food conservation is necessary.

Graphic exhibits on food conservation at fairs and expositions.*

Handbook for Pennsylvania train exhibit.

Resolutions adopted by various conferences or organizations.***

On Guard Leaflets

1. On guard.*
2. Fats, why save them?*
3. A pound of flour.*
4. A cubic inch of meat.*

War service in the home.**

Ten things Americans should know and seven things Americans should do.**

Food regulations for householders briefly stated.

War cook book for American women, by F. J. Haskins.*

War economy in food with suggestions and recipes.*

Suggestions for food conservation in course dinners and luncheons.

Practical suggestions for food conservation. Simple meals.*

Tested recipes (12 slips).

Policies and plans of operation. Wheat, flour, and bread.

Doubling the wheat.

Bread, a foreword and three recipes.*

Victory bread, (experimental formulas).

Victory bread, save the wheat.

Wheat saving program for the household.

Pound for pound. April 1918.

Until the next harvest.

Wheat for liberty.

Corn.

Wheatless recipes.

Outline for a potato campaign. March 1918

Potatoes for wheat.

Christmas sweets.*

Victory sugar.

Production, distribution and food value of milk.*

Ice harvest.*

Garbage utilization.

A new price index, April 1918.

Food Questions Answered

Cards

Home card.

Home card. (Second.)

Home card, 1918.

Home cards in English and vernacular, Bohemian, Finnish, French, Hungarian, Italian, Jewish, Norwegian, Russian, Slovak and Swedish.*

Theatre—Pledge card.

Breads.*

Fats.*

IN COÖPERATION WITH THE DEPARTMENT OF AGRICULTURE

U. S. Food Leaflets:

Choose your food wisely.

Do you know corn meal?

Do you know oatmeal?

Food for your children.

Instead of meat.

Make a little meat go a long way.

Plenty of potatoes.

Start the day right with a good breakfast.

Vegetables for winter.

A whole dinner in one dish.

Milk. The best food we have. Give your children milk.

Save fuel when you cook.

Dried peas and beans.

Let the fireless cooker help you cook.

Save sugar. Use other sweets.

Use fat carefully.

Use more fish.

How much food is enough?

What are calories?

What is protein?

IN COÖPERATION WITH THE DEPARTMENT OF AGRICULTURE AND THE WOMAN'S COMMITTEE OF THE COUNCIL OF NATIONAL DEFENSE

Food in war and peace. (In press.)

IN COÖPERATION WITH THE BUREAU OF EDUCATION

Lessons in community and national life. (15 community leaflets). Now issued by the Bureau of Education.

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NEWS FROM THE FIELD

NEWS NOTES FROM THE FOOD ADMINISTRATION

The present is an opportune time to make a campaign as vigorously as local conditions warrant on the greatest possible use of all fresh perishable foods products. Consumers should not be allowed to forget that the use by them of these shortlived foods liberates the more concentrated and staple ones for people in the remote sections and for the Allies and soldiers.

The usual wastage of large volumes of these products should be overcome in a season like the present one.

A train of 127 freight cars, containing 40,367 barrels, valued at \$442,914, the repurchase price, represents wheat flour turned over by the people to the Food Administration for shipment abroad as the result of a drive throughout the state of Arkansas to obtain flour for our Army and the Allies.

For the first time in more than thirty years the granaries of the Mormon Church are being swept clean, and more than a quarter of a million bushels of wheat have been turned over to the Food Administration. This represents the enormous reserve supply that was built up under the régime of Brigham Young to protect his people against any possible emergency.

This big church reserve supply of wheat is collected under the tithing practice. The farmer church members after each harvest contribute one-tenth of their production. This not only provides insurance against famine, but is drawn upon as seed for future crops.

Nothing before has ever been allowed to interfere with the collection and preservation of this reserve.

Although the American housewife is urged to can or preserve every ounce of fruit or

vegetables she can possibly lay her hands on as a patriotic food conservation measure, her product must be reserved for civilian use. Home canned and preserved goods cannot be purchased or accepted as gifts for the Army or Navy because of the difficulty acceptance of small lots would entail in the way of inspection.

But every additional million jars or cans that are filled by housewives for home use will release an identical quantity of commercially canned goods for export. There will also be saved the labor, space on freight cars and cost of transportation that would mount up if factory-preserved foods had to be sent broadcast throughout the country, instead of being shipped in large blocks to cantonments or abroad. Housewives will be able to use containers already in their possession, thus relieving the demand for cans at a time of shortage of tin.

During the months of June, July, and August the Food Administration is extremely anxious to secure a reduction of fresh beef consumption in order to maintain the Allies' supply, and to secure this without substitution of pork or poultry. While we have enough of these for ordinary consumption, we can not provide for their additional use as substitutes for beef. We have supplies of by-products such as ox-tails, tongues, livers, kidneys, sweetbreads, tripe, and brains, because only the meat cuts are being exported. The use of these could be employed but more especially the use of sea food, vegetables, and fruit. The use of milk and dairy products is also urged.

National Conference of Social Work,
Kansas City, May 15-22, 1918. Mobilizing the Local Community, The Children's Year and After, Some Problems of the War

and Reconstruction, The National Problem of Malnutrition Among Children of School Age, Americanization, The Role of the Volunteer in the Social Work of the Future, —these are a few of the many important topics discussed at section and general meetings during the National Conference of Social Work. A number of home economics workers were in attendance at the Conference, their interests being centered at a home economics luncheon held at the Savoy, Saturday, May 18, under the direction of the Social Work Committee of the American Home Economics Association, and with the special assistance of Miss Louise Stanley of the University of Missouri and Miss Anna E. Hussey of the Kansas City public schools.

Over fifty were present at this luncheon all of whom were actively engaged in various forms of home economics and social work in the states of Missouri, Kansas, Nebraska, Illinois, Minnesota, Michigan, Ohio, New York, Pennsylvania, Wisconsin and Massachusetts. Many reports were given of interesting work under way in various localities, and there was much interchange of personal experience in problems of community organization, especially the problems involved in organizing, training, and utilizing home economics volunteers. There was also considerable discussion of the methods to be used in reaching the foreign-born man and woman, the value of the visiting housekeeper in community effort as well as in the work of the charitable society, and the desirability of greater correlation between the courses in home economics schools and the work in various social agencies, so that students might be given more opportunity for supervised field work in family visiting, and thus greater opportunity for experience in adapting home economics instruction so as to meet individual home needs.

It is hoped that at the next Conference

this special home economics discussion may be included as a more definite part of the Conference program, and that a much larger number of home economics workers will be in attendance at the Conference to receive the stimulation, inspiration, and practical help which its meetings always provide.

EMMA A. WINSLOW,
*Chairman, Social Work Committee,
American Home Economics Association.*

Teachers of Domestic Science for China. Several of the missionary boards are asking for domestic science teachers in various countries, among them China. One call has just come from the Woman's Union Missionary Society, 67 Bible House, New York City, for a domestic science teacher in the school of the Society in Shanghai, China. The opportunity is not alone to teach domestic science to Chinese girls, but to train Chinese young women as teachers of domestic science so that they will go out into the public schools. Teachers of domestic science who would be interested in this or similar opportunities may well correspond with the Student Volunteer Movement for Foreign Missions, 25 Madison Avenue, or the Missionary Boards of the Churches.

The Food Shop of the Women's Educational and Industrial Union, Boston, announced that beginning May 1, 1918, it would offer for sale no products containing wheat. This statement accompanies the announcement: "The elimination of wheat may affect the appearance, taste, and quality of certain products, and since some of the substitute flours cost twice as much as wheat flour, prices may be affected also. We rely on the coöperation of our patrons to make this change a success. We believe you are ready to endure cheerfully minor privations that wheat may be saved for our soldiers at the front and for those of the Allies."

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THE FOOD OF BELGIUM

VERNON KELLOGG

The Food Administration asks that we be as careful and economical of food as we can; that we modify our food habits in some little measure in order to increase the quantity of wheat, meat, and sugar that can be sent overseas. It asks for nothing in the way of real deprivation or sacrifice. Most of us are doing what it asks. But how little it is when we compare it with what some other people are doing.

Part of our food-savings goes to Belgium. For three and a half years America has helped to keep Belgium alive. It has sent, with whatever regularity has been possible, the wheat, rice, dried peas and beans, lard and bacon that furnish the daily ration for the ten million unfortunates in Belgium and occupied France. And this daily ration! What a ration it is; a piece of war bread, a little rice, dried peas and beans, a microscopic portion of bacon and another of lard, a scant allowance of condensed milk and a little burned grain to take the place of coffee. And this same ration day after day, over and over again.

One-half the people of Belgium today receive a part or all of their daily food from charity. Over a million and a half get their food by standing each day in the long soup lines in front of communal kitchens. Whenever our food shipments decrease, these soup lines increase, because when there is a shortage of food in Belgium, the soup lines and the children's canteens are the first to be cared for. In one month, the soup lines of proud old Antwerp increased from 40,000 to 150,000. That meant that every other man, woman, and child in that great city had to rely on the soup lines for daily bread.

Isolated from the rest of the world, cut off from news of their own soldiers at the front, assaulted physically and tortured mentally by their

utterly cruel oppressors and slave drivers, they have yet maintained a spiritual resistance and, wherever possible in the face of machine guns at street heads and in open places, a physical resistance to the Germans. Theirs has been the real trial and the real sacrifice. Not the least part of this trial and sacrifice has been in connection with their lack of food.

Shall we now, because our experience in the war is beginning, forget their long experience, with its ever increasing hardship and privation? It has not been difficult for us to spare for Belgium the food that it has needed, but with the growing demands on us for the other Allies, and the needs of our own army overseas, it is becoming more difficult for us to maintain the Belgian shipments. This growing difficulty must in no way lessen our giving. We must meet it—and we can easily meet it—by making the beginning of a sacrifice on our own part. What was before so easy that we could not notice it in our own living is now becoming a duty and privilege which we can in some slight measure personally feel. There is no question for us of the semi-starvation that has been the actual condition of the Belgians for three and one-half years. There is no question even of real hardship, nor of the least injury to health or impairment to strength. There is only the question now of a slight sacrifice of taste and of convenience. But we must make this slight sacrifice if the Belgians are to be kept alive, and the Italians, the French, and the English are to be enabled to carry on the war.

We should be glad of our opportunity. These other peoples have already fought for us too long, but they must keep on fighting. In order to do this, however, they rely on us absolutely for their food supply. To meet that obligation of ours is the real reason for our government food control, our Food Administration. All the suggestions, all the regulations made by the Food Administration have one end in view—that we shall continue, even in the face of increasing difficulties, to maintain the food supply of the fighting Allies, and keep the Belgians, as we have literally kept them so far, from starvation. If we could but once visualize the situation of those long-suffering people, we should insist upon putting ourselves beside them, not only with heart and soul and army and navy, but as companions in hardship and sacrifice; we should insist that we share and share alike. I am almost glad that the food situation is becoming more difficult, because as we feel it more, we shall do better and better. All we need is truly to realize the situation in order to meet it. That realization is beginning.

TEACHING FOOD VALUES¹

C. F. LANGWORTHY

United States Department of Agriculture, Washington, D. C.

At such a time as this, when food problems are of the greatest importance in connection with the War Emergency situation and when we must make every effort to stretch our food supply to meet military needs and the needs of the civilian population in the United States and allied countries, it is well that we should take stock of our knowledge of foods and food values to see what we have and how we can best make use of it.

Besides an instinctive recognition of the need for variety in the diet, we have a great store of empirical knowledge as to how to gather food, how to grow it, how to make an unpromising raw material into a usable foodstuff, how to cook food so as to develop its good qualities, and how to combine different kinds into palatable and nourishing meals. We have also an understanding, even though we do not always act upon it, of the importance of moderation in eating, and we recognize that a continuing sense of well-being, health, and vigor is one proof that we are rightly fed.

For such knowledge we have to thank the countless generations of men and women who have learned in the school of experience and passed on what they have learned. We have also to thank the thinker who has pondered on these things which pertain to our daily life and drawn conclusions for our guidance. Out of this thinking has come the laboratory method, old in its beginnings and very greatly developed in the last few decades, which enables us to test the worth of theories and to accumulate carefully tested data.

The research method has enabled us to know the structure, operation, and fuel requirements of the body machine and has just lately shown us that mineral and protein building material and energy are not enough but that we must have in addition two other substances essential for normal body growth and maintenance, which we frankly refer to as the "unknowns," because we do not know as yet the nature of something whose existence has been demonstrated.

¹ Presented at the Tenth Annual Meeting of the American Home Economics Association, Atlantic City, March, 1918.

Taking stock of what we have naturally raises the question as to whether or not we can more effectively apply the existing information to insure a more satisfactory use of food resources and provide a diet adequate for normal body development and maintenance. All will agree that there is a general willingness to learn, that there is much to teach, and that there are highly developed methods for giving instruction. In proof we have only to think of the great development of formal home economics teaching in the last fifty years, the great popular interest in the subject, and the efforts which are being made to meet a popular demand by extension teaching and in other ways. Through the efforts of the Government, the American Home Economics Association, and other agencies, home economics, of which food is so important a part, has been systematically classified in pedagogical form, and it has been shown that in truth home economics is, to quote a definition, "the *organized* body of knowledge which treats of food, clothing, shelter, and household management in their physical, economic, and social aspects as related to the life and welfare of the individual, the family, and the community."

Though no one would claim that the ideal had yet been reached, it can be justly claimed that professional teaching in home economics—and one might more truly say in food than in any other of the subdivisions—is being successfully carried out. There are well established and well arranged courses of instruction for teachers, professional and vocational needs, and also courses arranged to form a part of general cultural education. To meet the demands of teacher and student, subject matter has accumulated rapidly in the form of government and state documents, text-books, reference books, and so on, and also in popular generalizations and discussions.

In the matter of food and dietetics, general information is available and is being widely disseminated regarding production, handling, marketing, and preparation of food for the table, and a terminology known only in the laboratory a few years ago is becoming common in the public press and in conversation. Indeed it is comparatively easy to give much information on food and its uses and to give it in a form which is readily understood and generally acceptable.

In considering the matter one must not overlook the great demand which exists now, as it always has, for generalization and "rules of living," a demand coming largely from those who have had neither time nor opportunity for even a limited amount of special training in food and its use but who have a right to know, if it is possible to tell them,

how to select foods wisely, how to prepare them acceptably, and how to combine them into adequate meals. It surely behooves home economics workers to meet this need and not leave the field to the ignorant and to the exploiter whose fantastic statements and claims, which may seem to many as reasonable as would the scientific facts, are only too often presented in language which he can understand and with a specious authority which a reader or a hearer accepts without question. To do its part, home economics must fully appreciate the need for simple and definite instruction and must itself make generalizations and lay down its "rules of living" always with an honesty of purpose which recognizes that rules are only attempts to express truth and that they must be modified as knowledge accumulates.

A study of the meals of families whose health and general body maintenance indicate that they are well fed, shows that though food materials differ widely the world over, there is nevertheless a uniformity when one takes into account the chemical substance which the foods supply and the amounts of the food constituents the body obtains. In the same way a study of the composition of foods and the ways that they are used in the diet shows that varied as they are they may be grouped in a way which will indicate both similarities and differences in food value and consequently in dietetic use. To be useful as a basis for popular instruction in food values, such grouping must be simple, easily understood, and of a sort which can be readily used. Like all such generalizations it must accord with common experience and common sense. The generalization which the Department of Agriculture has made—and the Department has profited by the many attempts at food grouping which others have proposed—divides the available food supply into five groups: The first is made up of fruits and vegetables, the second of milk, eggs, meat, meat substitutes, and meat savers, the third of cereal foods and their products, the fourth of sugars and other sweet foods, and the fifth of fats and fatty foods. The first group supplies mineral building material in a proportion large in comparison with its energy value. The second group supplies in its protein, in a proportion large as compared to its energy value, nitrogen in the right form for body-building material. The fourth group supplies little except body fuel in a quickly available form. The fifth group is like the fourth, an energy-yielding group, but is set apart because the amount of energy supplied per unit weight of fat is so much greater than that supplied by a unit weight in any other group. Between the first two and the last two groups comes group three, the cereal foods and their products,

which truly is a "middle group" in that the cereal foods share the properties of the groups which precede and those which follow, being valuable sources of mineral and nitrogenous body-building materials and also important sources of energy. When one thinks of this it is easy to understand the reliance that mankind places on this group and to see why bread has been so generally looked upon as the staff of life.

In arranging the foods under the several group headings, the lists may be long or short and each list may or may not be subdivided to bring out the differences in its members. Very commonly in popular teaching a short list, without any special attempt to subdivide the members of each group, is to be preferred since too much detail often hinders rather than helps one to grasp the main point which is after all simple and easy to understand, remember, and apply—namely, that foods are different, and that the diet must contain the different kinds.

The grouping of foods can be simplified or can be elaborated as seems best under given circumstances.

*The five food groups**

Group I <i>Fruits and vegetables. Important sources of mineral substances.</i>	Group II <i>Milk, meat, meat substitutes, meat savers. Sources of protein.</i>	Group III <i>Cereals and their products. Starchy foods. Valuable sources of energy and protein.</i>	Group IV <i>Sugar, sugar substitutes and savers. Supply energy in readily available form.</i>	Group V <i>Fats and fatty foods. Supply much energy.</i>
<i>Vegetables</i> Spinach Lettuce Cabbage Celery, etc. Salsify Potatoes Carrots Onions, etc. String beans Green peas Green corn Okra, etc.	Milk Cheese Eggs <i>Meat</i> Beef Mutton Pork Veal, etc. <i>Meat substitutes</i> Fish Oysters Clams and other sea food Some legumes <i>Other protein rich foods</i> Beans Peas and most other legumes Nuts	<i>Grains</i> Wheat Rye Corn Rice Oats Barley Grain sorghums Buckwheat, etc. <i>Grain products</i> Flours Meals Cereal break-fast foods Macaroni, etc.	<i>Sugars</i> Cane sugar Beet sugar Maple sugar Milk sugar <i>Sugar substitutes</i> Molasses Honey Glucose Corn sirup, etc. <i>Sugar rich foods</i> Sweet fruits, fresh and dried Jams Preserves Candy, etc.	<i>Fats</i> Butter Cream Lard Drippings Seed oils Nut oils, etc. <i>Fat-rich foods</i> Fat pork Bacon Suet Oily nuts, etc.

* Though essentially the same, this classification differs somewhat from that published earlier. Sci. Mo., 2 (1916), p. 294.

In using such a table, and it may be made to include local as well as general food products, the first thing for beginners is to learn the name of the groups and the members of each group, and it is hardly possible to do this without realizing that foods are different and that the groups bring like kinds together. When one seeks reasons for the grouping it should be made clear that building material characterizes the first two groups and fuel value the last two groups, the middle group being the meeting ground of these characteristics. Though obviously this classification of foods is based upon their characteristics (1) as building and repair material and (2) as body fuel, some discussion may arise as to why a given food should be included in one group instead of another. For instance, the potato is recognized as a starchy food—why not put it in Group III with other starchy foods? For one reason because its common use is as a vegetable; for another, because one is more likely to overlook its value as a source of mineral building material than its value as a starchy food. One can point out, however, that if there is a shortage of starch-yielding cereal, potato can be used in place of it, becoming a temporary member of Group III.

So far as it goes the classification is in accord with facts and is consistent and forms part of a definite plan for making food facts plain. It shows a number of relations and makes the discussion of many matters easy. It is not claimed that it does all that is desirable. A classification which would also bring together the foods which are the chief sources of the two unknown constituents, Fat-soluble A and Water-soluble B, would be convenient but this does not seem feasible until we have a more definite knowledge of these constituents and their relation to those whose uses for body building and body fuel we know more about. However, one can discuss these constituents on the basis of the present classification. For instance, it can be pointed out that Fat-soluble A is found conspicuously in certain members of Group I, Group II, and Group V. The relation of the green leaf vegetables of Group I to the presence of unknown A in certain members of Group II (milk, egg yolk, and meat), and Group V (butter, cream, suet), which come from animals which live on green forage crops, offers an opportunity to discuss many problems pertaining to the value of foods in nutrition.

As regards water-soluble B, one can point out that though it may occur in some members of all the groups, it is characteristic of the green portions of plants or other actively growing portions, and that it accumulates in the body of animals, particularly those which directly live

upon such parts of plants. The relation of milling, sugar refining, oil making, etc., to the presence or absence of mineral constituents, protein, and the "unknowns" is another matter which can be mentioned and naturally leads up to the discussion of the special value of some foods. It can be pointed out, for instance, that milk, a "natural" food, is almost indispensable because of the Fat-soluble A it supplies, and the special value of its protein. It can be pointed out also that butter, a milk product, in addition to being an important energy food, contains Fat-soluble A. In discussing starch it can be pointed out that it is a carbohydrate food useful as a source of energy, while the grain or roots from which it is made, contain body-building material as well. One can go on to show how easily meals can be planned to include foods which meet all needs and how one food may be used to make good a deficiency in another; eggs, for instance, to supply protein deficient in a diet high in vegetables, fruits, and starchy foods. This will afford another illustration of the fact that to be satisfactory meals must be truly varied if they are to supply the needed body fuel and the building and repair materials, including the "unknown" essentials.

By considering such matters as these in relation to body needs, it becomes apparent that diets which are conceded to be adequate or truly balanced contain representatives of all five groups. One may reverse the statement and truthfully say that a diet in which all the five groups are reasonably well represented will meet the food requirement of the body.

It need hardly be said that there is no thought that such a generalization as the food grouping suggested should be used to replace other methods of presenting the subject which have been tested and found good. It is the conviction that such a plan as this has a place with them and that it will prove useful under circumstances where a more technical presentation would not be readily understood or where it may serve as a convenient introduction to the more technical presentation.

In addition to publications of the Department of Agriculture which have already appeared, others are planned in which food selection, meal planning, and other problems are discussed on the basis of this food group generalization, together with charts and other illustrative material which help to make it clear that it is easily possible to plan meals which do meet the needed body requirements and also that it is only too easy, if one does not keep in mind this simple grouping—or something else which makes clear the likenesses and differences in foods—to plan meals

which are so unduly rich in body-building foods or energy-yielding foods that the diet is decidedly "unbalanced."

Knowing the food groups greatly simplifies the housekeeper's problem for she can think of her problems in terms of the foods which she knows rather than in the terms of the laboratory. The other members of the family can also understand the matter and see why, if they are to have a truly balanced diet, they should partake in reasonable amounts of all the foods which she has chosen and prepared for them. It is easy to see also that if one lives upon a diet very generous as regards carbohydrate foods, either starchy foods or sugar, or very generous as regards foods rich in fat, the diet will have a fuel value unduly high as compared with building material. If, on the other hand, our meals day after day are very generous with respect to meat and similar foods, the diet is almost sure to be deficient in mineral substances or in fuel value. Or again, it may be made plain that if green vegetables are generally left out of the diet because one may not happen to fancy them, there is a danger that too little of the mineral matter required for body building or of the unknown dietary substances will be supplied to meet the body needs.

The great value of milk as a food of which it is difficult to eat too much, the value of butter fat, of cheese, and of eggs, can be made clear as well as the varied usefulness of cereal grains and their products, and it can be shown why it is that we can depend so largely upon cereal foods,—and this means lowered cost,—provided one keeps the balance right by using reasonable proportions of other groups, particularly such foods as milk, eggs, vegetables and fruits.

Knowing the different foods and their relations to each other in the way proposed helps on the cost side of the problem also, for, since the idea is good representation of all the groups in the diet, one can see that this ideal can be attained very generally by using the cheaper members of a group in place of the more expensive. One can see also that members of one group can be used in place of those of another group under some circumstances, as bread or rice for potatoes, or the other way round. Such matters are easier to explain if one has learned to know the sorts of food there are and those there are of each sort.

The food group generalization presented is based upon an extended study of dietary and other data sufficient, it is believed, to warrant the conclusion that it is sound. That it is convenient for popular instruction seems clear from the results obtained by home economics workers who have been good enough to test the matter in their extension and

other teaching work. It has been a common experience to have a house-keeper say "This is something which I can understand and follow and which really helps me to plan my meals in a way which I can see must give my family what they need." Further, it has been found that this "food group" plan offers an easy way of introducing the subject of food and nutrition in more formal instruction and that it furnishes a convenient arrangement of pegs on which to hang a great many facts regarding food and its uses.

TEACHING FOOD VALUES¹

ALICE F. BLOOD

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I should like to contribute five minutes of my time to the general discussion because the thing I am here to say can be said briefly. I am here neither to present a plan like that of Miss Hunt's, nor to report progress as Miss Creswell is able to do, but to express the state of mind of home economics teachers. I know that I speak for the teachers here when I say that we feel the same sense of responsibility for the instruction of the general public in the principles of nutrition that we feel for the instruction of the students in our immediate care, and that we feel it one of our first duties to arouse in our students a sense of responsibility to the community.

I am not in close touch with rural conditions but there has certainly never been a time in the city when it was so easy to get an audience for the discussion of food. How to reach everyone in a city is another matter. I am inclined to think that our best messengers are the people who already have an entrée into the home. We have in Boston an enthusiastic home missionary who earns his living selling Grade A milk. A short time ago I sent to his firm for some advertising literature and he was sent to bring it. We fell to talking about the educational needs of people and he fairly burst out, "You see I go to people's

¹ Part of the general discussion on How to Teach Food Values to the General Public, at the Tenth Annual Meeting of the American Home Economics Association, Atlantic City, March, 1918.

back doors and sometimes I arrive just as the woman is dishing up dinner. You haven't any idea of the dreadful cooking I see. There isn't a day goes by that I don't talk to some woman about her house-keeping and it isn't any of my business either." His instruction may not be as complete as we would like to have it but it at least has the advantage of reaching the woman who needs it most. I am convinced that if we are to reach great numbers of our city people we must do it indirectly through the people who go to the home on some other errand.

An effort in this direction has been made for a number of years by the Instructive District Nursing Association in Boston whose nurses are all trained in the principles of nutrition before they are sent into their districts. A similar plan is that to interest kindergarten teachers in the proper feeding of children.

Our first duty at this time is to carry, either directly or by proxy, the messages of the Food Administration but we shall be missing a great opportunity if we do not at the same time manage to teach a few of the most fundamental facts with reference to good cooking, judicious expenditure for food, and adequate nutrition.

Those who select their food solely with a view to economy as respects cost find in the literature concerning foods the information that the cheapest sources of both energy and protein are the cereal grains, and the legume seeds, peas and beans. Economic conditions are now such that rigid economy is necessary in the purchase of food, especially among city dwellers with small incomes. Unless the public is speedily educated regarding the necessity of employing regularly in the diet either an appropriate amount of milk or of the leafy vegetables, it seems certain that the time is not far distant when dietary errors now becoming common will become a still more important menace to the public health.—*E. V. McCollum and N. Simmonds, Jour. Biological Chemistry, February, 1918.*

THE UTILIZATION OF SOME NUTS AS FOOD¹

LIEUT. FLORIAN A. CAJORI

Sanitary Corps, N. A.

The term "nut" as usually used in dietetics is not defined on a botanical classification but applies to those fruits in which the edible kernel or meat is surrounded by a harder covering or shell. With this broad and rather loose definition not only deciduous trees but legumes, conifers, plants of wide botanical difference contribute to the supply of what is spoken of as nuts.

Chemical analysis shows that the edible part of nuts holds an almost unique position among the food stuffs; it is highly concentrated, rich in protein, fat, and sometimes in carbohydrate, contains little refuse, and in these respects may surpass even such well recognized concentrated foods as cheese, eggs, meat, and cereals.

From the nutritive point of view nuts may be divided into two groups. The first, which embraces the largest variety of our available nuts, is characterized by its high content of protein and fat. Such nuts as the almond, peanut, pine nut, and Brazil nut, fall into this class. The other group, exemplified by the chestnut, coconut, and lichi nut, is of low protein and fat content, but richer in carbohydrate. The reader is referred to the publications of Jaffa (1903), Woods and Merrill (1899), and Street (1916) for a description of the various nuts and tables showing their composition.

Nuts and products made from nuts have long been used by man the world over as adjuncts to his diet. Among certain people and in certain localities this class of fruits, instead of being a mere supplement to an already complete dietary, has assumed a prominent place among the staple articles of food. Nevertheless, despite the fact, revealed by chemical analysis, that nuts offer a source of protein and fat in a concentration seen in no other class of foods, their use has, as a rule, been limited to that of a delicacy supplementing an already adequate diet. As Woods and Merrill (1899, p. 90) say in discussing the food value of nuts: "In view of their high nutritive value, the readiness and cheapness with which they may be prepared, it is a matter of some astonishment that they have received so little consideration as a food." The

¹ From the Sheffield Laboratory of Physiological Chemistry in Yale University, New Haven.

failure to eat them more extensively is doubtless due in part to the reputation for indigestibility that nuts have, and to the discomfort that often occurs after eating them at the close of a heavy meal. The study of the literature on the digestibility shows that there is no evidence to sustain this reputation for indigestibility that has empirically arisen. It must be admitted, however, that there are comparatively few metabolism experiments on record in which nuts made up a prominent part of the diet.

The earlier investigators who used nuts in their experimental diets were not primarily interested in the digestibility of nuts, but were studying the minimum protein requirement or the comparative value of vegetable versus animal protein; and they gave little indication as to the fate of the nuts included in their diets. Of the earlier papers those of Albu (1901) and Rumpf and Schumm (1899) are of interest as having a bearing on the digestibility of nuts. The most extensive experiments on record are those made by Jaffa in California (1901) (1903). His studies were conducted with fruitarians and nutarians who had lived for many years on a diet consisting mainly of nuts and fruits; and with a few university students who assumed the nutarian diet during the period of the experiments. The nuts used in Jaffa's diets were those commonly seen on American tables: the almond, English walnut, Brazil nut, pecan, and coconut. Jaffa's results, expressed as the conventional "coefficient of digestibility" of protein, ranged from 70 to 82 per cent on a diet of nuts and fruits, with an average of 75 per cent. On a mixed diet containing nuts he reports a protein utilization of 90 per cent. The average coefficient of protein digestibility for ninety-three metabolism experiments with young men on ordinary mixed diet has been computed by Atwater and Bryant (1899) as 93 per cent. A comparison of Jaffa's results with the average coefficient of digestibility on a mixed diet at once places the nut proteins—or properly speaking, the nitrogenous components—in a favorable light as highly nutritive foods.

Niles (1909) kept medical students on a diet of bread and fruit, along with pecans, peanuts, and Brazil nuts for several days and reported that his subjects at the end of the period seemed to be in "fit" condition with no intestinal disturbance when nuts were eaten as a staple part of the diet. However he did not make observations that would contribute facts to the actual digestibility of the nuts consumed. With the exception of Jaffa's extended studies on the digestibility of nuts there are no detailed experiments in the literature on the value of nuts as foods.

It seems desirable, especially at this time when, with the decreasing meat supply, the world's food resources must be extended, that more light be thrown on the real place that nuts may assume in the diet.

From the work of Langworthy and his co-workers (1917) on the digestibility of vegetable fats there is no reason to question the food value of the nut fats or to look on them as radically different in their physiological behavior from the other naturally occurring fats. We have therefore extended Jaffa's work and endeavored to determine if possible what factors influence the digestibility of nut proteins and carbohydrates.

PLAN OF THE EXPERIMENTS

The metabolism experiments were planned to study the utilization of the nitrogen in the case of the protein rich nuts, and of the carbohydrate and nitrogen of the chestnut, lichi nut, and coconut.

As Mendel and Fine² have pointed out in studies on the utilization of the proteins of the cereals, in addition to the relation to digestion that the protein under study may possess there are other factors which must be considered in utilization experiments. The texture of the food that contains the protein, as well as the presence of hemicelluloses or other indigestible substances that will give bulk to the intestinal content must be considered. The condition of the nuts, i.e., whether raw or cooked, the influence of moderate cooking, as when nuts are steamed and boiled, or the more extreme heating in roasting—these are factors that may influence the digestibility of nuts. For example, Saiki (1906) found that the starch of the raw chestnut was practically indigestible; yet cooked chestnuts are staple articles of the diet in many sections of the world. Merrill (1906) reports the utilization of the carbohydrates of cooked chestnut flour to be as good as that of wheat flour. It is customary in America to heat the peanut and often the almond before serving; while the pecan, English walnut, and pine nut are usually eaten raw. Nut butters and nut pastes are appearing on the market in increasing amounts. Is the nut served in this form more digestible, or is its nutritive value altered by this treatment? The experiments reported below were planned to try to answer some of the questions suggested above.

The diet experiments were conducted on dogs and on men³. The

² Mendel and Fine. Jour. Biol. Chem., 10, (1912), p. 303, p. 339.

³ Through the courtesy of Dr. J. H. Kellogg of Battle Creek, Michigan, opportunity was afforded at the Battle Creek Sanitarium to carry out the experiments on men. The assistance received from Dr. Paul Roth, director of the Clinical Laboratories of the Sanitarium,

food intake was carefully observed, all foods being weighed as served and all uneaten portions weighed at the end of the meal. Only dishes whose composition was fairly uniform from day to day were admitted into the diet. The dietary was selected to insure an intake sufficient for the calorific needs of the subjects. The human subjects either maintained their body weight or gained somewhat during the progress of the trials. The urine was not examined. In the case of the dog urinary analysis indicated whether nitrogen balance was positive or negative. The feces of the different experimental periods were separated by means of lamp black or carmine in the usual manner. Sharp separation of the feces of the different periods was in all cases possible. Bone ash was added to the ration of the dog to insure a suitable bulk of feces and daily evacuation. The feces for each period were mixed with alcohol, oxalic acid added, and the whole evaporated to dryness on a water bath.

The various articles of the diet, the urine and the feces were analyzed for nitrogen and carbohydrate—nitrogen in all cases by a modified Kjeldahl method. The carbohydrates were determined as the soluble reducing sugars present after hydrolysis with 2 per cent hydrochloric acid. Hydrolysis was effected by boiling under a reflex condenser for two hours or by heating in an autoclave under twenty-five pounds of steam for half an hour. After cooling, the hydrolysis mixture was freed from protein decomposition products that might reduce Fehling's solution, by addition of 25 per cent phosphotungstic acid. After filtration and washing, the filtrate was neutralized, made up to volume, and the soluble sugars determined by means of the Allihn gravimetric method. The results are expressed in terms of glucose.

In the table the results have been grouped according to the character of the diet to show the range of nitrogen utilization on the various diets.

The utilization of the digestible carbohydrates in the control periods and on the diets containing the various nuts was so excellent and so nearly alike that detailed consideration here seems unnecessary.

DISCUSSION AND CONCLUSION

In expressing the results of digestion experiments as the "coefficient" of digestibility, one must carefully interpret the figures thus

who placed all the facilities of the laboratory at our disposal, and the constant help and advice in planning the diets that Miss Corinne King, chief dietitian of the Sanitarium, gave, are gratefully acknowledged.

obtained, and realize that these coefficients are not absolute values for any food that predominates in the diet. The presence of cellulose-containing foods that vary the bulk of the intestinal contents and other factors that increase or decrease the so-called metabolic nitrogen will change such a coefficient as we have used, based as it is on the ratio of the fecal nitrogen and food nitrogen alone. Even after using the available methods for determining the metabolic nitrogen of the feces or making calculations to correct for this fraction of the nitrogen output the coefficient of digestibility can hardly be regarded as an absolute value. However in a series of experimental periods, where the general character of the diet was fairly constant and where several observations were made on the same individual the use of the digestion coefficient enables useful if not absolutely defined comparisons to be drawn between different experimental diets.

Metabolism experiment on man. Summary of digestion trials. Coefficient of nitrogen utilization.

SUBJECT	BASAL	ALMOND	ALMOND PASTE	PEANUT	PEANUT PASTE	PECAN	PECAN PASTE	PINE	ENGLISH WALNUT	COCONUT	LICH	BRAZIL
C.....	90	89	89			83		89			81	
C.....	90	89	88									
C.....	88											
C.....	86											
B.....	89	84	89	81		84					82	
B.....	87		88									
B.....	86											
B.....	86											
A.....	89			85	90		83			89		
A.....	85				90							
A.....	84											
G.....	90				92		81	89		87		
G.....	87				92							
G.....	85											
H.....	90	84							83			88
H.....	89											
Range.....	84-90	84-89	88-89	81-85	90-92	83-84	81-83	89	83	87-89	81-82	88

In general the proteins (i.e. nitrogenous components) and carbohydrates of the nuts studied were absorbed in large part; and in no case does the quantity of nitrogen or carbohydrate appearing in the feces indicate that these nuts are especially resistant to the digestive func-

tions of the alimentary canal. This conclusion is especially emphasized when the nuts are fed in a finely divided form as nut-paste or "butters." Here comminution is artificially obtained in a degree reached only by the most careful mastication. It is probably seldom that the whole edible nut is reduced by mere mastication to such a fine state as to contain no hard particles when it enters the stomach. Even small particles of such a relatively compact material as a nut in the stomach or intestines experience a slower rate or penetration of the digestive juice and consequent delayed cleavage of the nutrients contained in these food particles. The observed difference of digestibility between the peanut, fed as the whole nut and masticated, and peanut butter indicates the effect which texture may have on the ultimate fate of the food. In the case of nuts fed whole, macroscopic examination of the feces revealed particles of the insufficiently chewed nut. This was especially noticeable in experiments on a dog. It must be pointed out, however, that the dog is not an ideal experimental animal where foods of the texture of nuts are used. This animal bolts his food; and even the preliminary passage of the nut through a meat-chopper, as was the case in all these experiments, is an incomplete simulation of mastication. Further, the dog secretes no salivary amylase, a factor to be considered in experiments where starch utilization is the issue.

When Jaffa fed nuts ground up to a paste in his highly restricted dietaries they were unappetizing in this form to the subject; low utilization resulted. In a ration such as we employed, however, with sufficient adjuncts to permit mixing the paste with other foods, the paste was no less easy to eat than the whole nut.

That cooking causes any marked change in the digestibility of the protein-rich nuts is doubtful. Certainly in the case of the almond as used in our experiments the thoroughly roasted nuts show no advantage or disadvantage over the boiled or raw product. No significant difference appears between the peanut butter made from the roasted nut and that made from the boiled nut.

The raw almond appears to be as completely utilized as the thoroughly steamed nut. Some cooking undoubtedly is necessary in the case of the chestnut with its carbohydrate packed away in starch grains. In the few chestnut trials the nut was thoroughly boiled and steamed previous to feeding. A further study of the factor of cooking, especially with the chestnut, would be desirable in view of the numerous ways in which it and other nuts are prepared for serving.

The pecan, fed either as the whole nut or in the form of a nut paste, showed consistently low utilization coefficients in comparison with the basal or other nut diets. This is in agreement with the results of Jaffa, who found the almond and Brazil nut better utilized than the pecan. The pecan is characterized by having a higher fat content than any of the other fat-rich nuts. Whether this is the determining factor in the relative indigestibility of the pecan cannot be stated at present.

The lichi nut, widely used in the Orient, and becoming more common in American markets, is a product whose composition has not been studied in detail. In our experiments this nut was not fed in large enough quantities to make up a large fraction of the nitrogen or carbohydrate intake; yet it is significant to note that during the lichi periods nitrogen and carbohydrate utilization was below the average. Further study is necessary to reveal whether the nutrients present in this nut are in a form that can be utilized by the body.

In the case of the coconut the amounts of protein or carbohydrate derived from the nut are too small to permit final conclusions being drawn regarding their digestibility but no such lowering of the total utilization of the intake occurred as in the lichi periods.

Trial with the English walnut gave a rather low coefficient. The subject was troubled with a mild diarrhea while on the walnut diet. During this period only did the inclusion of large amounts of nuts in the diet give rise to intestinal disturbances. An irritating effect of the English walnut has been reported by other users of this nut.

The biological value of the individual proteins has scarcely been investigated. Osborne and Mendel (1911) maintained white rats satisfactorily on excelsin, the globulin of the Brazil nut, as the only source of protein in the diet. Johns and Jones (1917) point out that the high lysine content of arachin and conarachin, the proteins of the peanut, make the peanut protein of value as a supplement to diets whose protein is low in lysine. Hoobler (1917) in a study of the diets that give a maximum yield of milk in lactating mothers found that the nut proteins are equal to animal proteins and superior to other vegetable proteins as sources for the elaboration of milk.

The results of our metabolism experiments emphasize what has been previously pointed out by Jaffa and other investigators. Nuts are valuable foods. If eaten properly and used in the diet as eggs, meats, and other foods rich in protein are used, the evidence points to a physiological value on a par with that of more common staple articles of the diet.

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AN EXPERIMENT IN TEACHING CITIZENSHIP

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Any system of education which is not fluid enough to meet the ever changing demands of a community, has failed to accomplish its ultimate usefulness. Particularly is this true in a crisis where failure to meet individual obligations in citizenship is more often due to lack of knowledge than to lack of desire.

The necessary shifting of emphasis upon the conservation of various foodstuffs has created a situation difficult of adjustment to those accustomed to the study of dietetics; to women who scarcely understand even the English words used in the printed directions the situation has in it the element of tragedy.

With an idea of relieving this distress, in July, 1917, the Chicago Board of Education passed a resolution to the effect that whenever twenty or more adults desired instruction in any subject which would increase their value in citizenship, a school would be opened and a trained teacher provided. During the summer and autumn twelve classes in the canning and drying of fruits and vegetables were conducted. The wheat shortage of the early winter created a new demand—the making of good bread from flours other than wheat. This article purposes to relate how one class is attempting to meet the need.

The Haines Practice School is situated in one of the most cosmopolitan districts in Chicago. The two square blocks nearest the school were reported by the last census to be the most populous in the city, containing about 5000 people. A large percentage of the adults are of Italian, Sicilian, Lithuanian, Croatian, and Dalmatian birth. To the women of southern Europe the uses of oatmeal and cornmeal are almost unknown. Hence, the flour ruling of the Food Administration as interpreted by the local retailer worked a real hardship. Children in the domestic science classes of the school reported that their mothers were forced to buy "club offers" of undesirable goods in order to obtain white flour and sugar. These budgets often contained cheap pickles, catsups, and other unsalable canned goods. Others reported being forced to buy 100 pounds of rice or potato flour. Either through the ignorance or desire for gain on the part of the retail grocer no choice of, or division into different kind of cereals was allowed. Sometimes several flours were mixed together and sold as "black flour" which was very much disliked. All this was, of course, far from the interpretation intended by the Food Commission, whose great desire has been from the first, to protect the home consumer.

One morning in January an Italian woman with a shawl over her head walked into the principal's office. She brought with her a little girl of seven to act as interpreter. She showed a piece of dark, heavy, utterly uneatable baked dough. This she declared was the best bread she could make with "black flour." Her husband, she explained through the child, was "mad" and she had 50 pounds of this flour at home; what should she do? The principal sent for the domestic science teacher who took the woman into the school kitchen. There after sending for some of the same flour, the teacher with the aid of a fourteen year old girl in the class who spoke Italian, showed her how to make good bread.

This incident gave the impetus to the forming of a class of adults in war cooking. The first lesson was announced in every room in the school; notices were printed by the boys of the printing class in both English and Italian. The visiting teacher, who had found one woman sifting graham flour into every available dish-pan and kettle in the house while the children played on the floor with the bran, announced the class in each home which she visited. About forty women came.

The lesson was largely demonstration. Oatmeal bread was made and served with butterine and coffee. The making of a sponge with 1 cup white flour, 1 cup luke warm water, 1 cake of yeast (raised one

hour), was emphasized. The sponge bread was mixed in front of the class and taken home to be finished by one of the women. Previously baked bread was served. An Italian lawyer, a resident of the neighborhood, repeated the teacher's lecture and gave an address. Much enthusiasm on the part of the women was shown. The next morning a woman who had been forced to buy 100 pounds of rice flour at 12 cents a pound brought a pan full of it to school and asked to be shown how to use it. When she carried home four big loaves of light bread, she wept over the teacher's hand and exclaimed "Si, Si, when you only *know*."

The second lesson presented entire barley muffins made with baking powder and egg. Emphasis was put upon the need for the presence of either eggs or some white flour to obtain the stretching power necessary to resist the force of the gas in both yeast and baking powder, thus obtaining a light bread. An exhibit was shown of twelve different kinds of flours priced and arranged in the order of their protein value. An eighth grade girl acted as interpreter. The third lesson demonstrated barley bread with yeast; as before emphasis was put upon making a white flour sponge first. The exhibit showed a model breakfast for children. Sandwiches of barley-bread and peanut butter were served. The principal of the school gave a short address. Most of the women understand English although few speak it. Many expressions of a desire to help the war situation were uttered, some in English and some in Italian.

The fourth lesson, given on the Wednesday before Easter, was, by the request of the class, barley coffee cake, and hot cross buns made from the same dough. The basis of the dough was the standard one-egg cake recipe, using one-third barley flour, and substituting one recipe of the sponge made as above for the milk and baking powder. Enough equally divided barley and white flour were added to make a rather soft dough. Hot cross buns and coffee were served. An address on coöperation between home and school was given by an Italian woman, the wife of an Italian doctor. An exhibit of a proper dinner for children was shown, and by courtesy of the State Council for National Defense Caroline Hunt's pamphlet was given to each member of the class. Printed recipes in both languages were distributed. The lessons include meat substitutes, egg cooking, milk, and general child feeding.

Much of the success of the undertaking is due to the hearty coöperation of the Supervisor of Household Arts, and to the printing teachers, the visiting teachers, and the principal of the school.

THE PATRIOTIC POTATO

SARAH ELIZABETH BOWER

New York Public Schools

In the Riverside School, New York City, the potato came into its own during the early days of March.

Nothing could have been finer than the way in which the principal, heads of departments, eighty teachers, and three thousand pupils responded to the invitation of the Domestic Science teachers to participate in a two weeks' potato drive.

The food end of the campaign was necessarily carried on by the Domestic Science teachers in the seventh and eighth grades. Potatoes were boiled, baked, mashed, warmed over, cooked with cheese, milk and eggs, to suit every taste. Some classes cooked in family portions and sold the product in the school lunch room. That the idea really "got over" was well shown here. On Tuesday ten portions were unsold. On Friday every portion was sold within five minutes and the children were clamoring for more. Marketing, care, food value, and use as a substitute for wheat were all duly emphasized.

But the most effective correlation came in grades below the seventh. When history proved the potato to be a 100 per cent native American some surprise was created. It was also discovered that this humble and plebeian vegetable is not only a true democrat, but has become an international as well.

The accompanying suggestions in arithmetic were sent by the head of the department to each teacher, and the problems used sent back to her after being worked by children in their arithmetic periods. The ingenious teacher who applied the savings accruing from substituting potatoes for wheat bread, reported that as a result of the enthusiasm aroused during the drive, the children contributed a dollar in one week to the Junior Red Cross in place of a few cents the week before. Each child in that class took the arithmetic paper home to urge his parents to spread the news of the potato drive to the neighbors.

SUGGESTIONS OFFERED BY HEAD OF DEPARTMENT

Sixth Year. Percentage¹—food elements, water elements, etc.; denominate units; commission examples.

¹ For percentage of various constituents in potatoes, see Cornell Leaflet, Sept., 1917.

Fifth Year. Denominate units; farmers' profits; part of potato actual food.

Fourth Year. Denominate units; cost and selling price of potato—gain (two operations).

Third Year. Quarts of potatoes in a peck, etc.; cost of quart, peck, bushel; pounds of potatoes in bushel, in peck.

Second Year. Cost of so many quarts of potatoes.

Problems—Grade 1

For lunch yesterday Julia ate 2 potatoes, and for supper 1 potato. Tell me how many potatoes Julia ate yesterday.

A grocer sells 2 baskets of potatoes to one customer, and 4 baskets to another customer. How many baskets were sold?

Last night my sister ate 3 potatoes, and I ate 1. How many did both eat?

One farmer digs up 3 barrels of potatoes, and another farmer digs up 2 barrels. How many barrels have they?

John likes potatoes; he ate 4 potatoes, but Ethel ate only 1. How many potatoes did mother give to John and Ethel?

Grade 2

Bought 5 lbs. of potatoes on Monday, 3 lbs. on Wednesday, 7 lbs. on Friday. How many lbs. did I buy altogether?

Bought a 12 cent bag of potatoes; gave the man 15 cents. Change?

One lb. of potatoes cost 3 cents. Cost of 7 lbs.?

After spending 8 cents for potatoes, I had 2 cents change. How much did I have at first?

Mary and John had a garden. Mary dug 3 quarts of potatoes from her garden and John dug 5 quarts. How many quarts did they dig together?

Mrs. Smith bought 7 quarts of potatoes; she cooked 4 quarts. How many quarts had she left?

Mary bought altogether 9 quarts of potatoes; 5 quarts were sweet potatoes. How many were white?

Mrs. Jones had 7 children. She baked a potato for each. How many did she bake?

Grade 3

If 12 lbs. potatoes cost 48 cents, how much will 1 lb. cost?

I have 1 peck potatoes. How many quarts have I?

I had a quarter and spent one-fifth for 1 quart potatoes. How much did I spend?

There are 452 potatoes in 3 bags. How many are there in 1 bag?

I had fifty cents and spent nine cents of it for potatoes. How much money had I left?

Grade 4

Mrs. Brown cooked 27 potatoes for dinner. Her family ate $\frac{2}{3}$ of them. The remainder she fried for supper. How many did she fry?

A grocer sold 37 lbs. of potatoes one day and 46 lbs. another day. How many did he sell?

I paid 13 cents for potatoes. How much change did I get from half a dollar?

John ate $2\frac{1}{2}$ potatoes and his brother ate $1\frac{1}{2}$. How many did both eat? How many slices of bread did they save if 1 potato is equal to one slice?

A farmer had 90 bags of potatoes. He sold $39\frac{1}{4}$ bags. How many left?

A grocer sold $37\frac{1}{2}$ lbs. of potatoes to one customer, $17\frac{7}{8}$ lbs. to another, and $9\frac{1}{4}$ lbs. to another. How many lbs. sold?

A man bought 84 bags of potatoes at \$1.25 a bag. If he sold them for \$126.00 how much did he make?

Grade 5

A farmer raised 250 bu. of potatoes on one field; 391.52 bu. on another; 815.7 bu. on a third, and 587.031 bu. on a fourth. How many bu. did he raise?

A grocer buys 32.5 bu. of potatoes at \$1.25 per bu. Find the value.

$32\frac{3}{4}$ bu. of potatoes were divided equally among 16 families. How many did each receive?

How many paper bags will be required to hold 96 potatoes if each bag holds one dozen?

A man raised 424 bu. of potatoes and sold $\frac{5}{8}$ of them. How many left?

How many quarts of potatoes can be sold from a bag containing 13 pecks?

How many loaves of bread would a family of 5 save in 2 weeks if each member ate a potato at lunch and dinner instead of a slice of bread, allowing 16 slices to a loaf? $8\frac{3}{4}$ loaves.

How many lbs. of flour would that same family save in those 2 weeks, allowing $3\frac{1}{2}$ lbs. of flour to 3 loaves of bread?

$$\frac{1}{3} \text{ of } \frac{7}{2} \times \frac{3.5}{4} = 10\frac{5}{4} \text{ lbs.}$$

How many lbs. of flour would be released for our soldiers and sailors and allies if the 20 million families in the U. S. were patriotic and loyal enough to do this?

$$\frac{24.5}{2} \times 20 \text{ million} = 204\frac{1}{2} \text{ million lbs.}$$

Potatoes are 30 for 25 cents. What would it cost that same family for each member to substitute a potato for a roll at breakfast for 1 week?

$$7 \times 5 \times \frac{2.5c}{30} = 29\frac{1}{6} \text{ cents}$$

What would rolls cost for one week? $7 \times 5 = 35c$

How much money would that same family save in 2 weeks by being patriotic and substituting the potatoes for the rolls?

$$2 (35c - 29\frac{1}{6}) = 11\frac{2}{3}c$$

If the 20 million families in the U. S. did this and saved $11\frac{2}{3}\text{¢}$ each and gave the money to the Red Cross, how much money would the Red Cross receive?

Suppose $\frac{1}{2}$ was given to Red Cross and $\frac{1}{2}$ used to buy thrift stamps; how many thrift stamps would U. S. sell? How much would Red Cross receive?

Suppose war saving certificates were purchased with $\frac{1}{2}$ of this money in March; how many would the U. S. sell?

Grade 6

Potatoes contain about 18 % of starch. How much starch can be obtained from 225 bushels of potatoes, each bushel weighing 60 lbs.?

An agent sold 350 bushels of potatoes at \$1.80 per bushel and charged $1\frac{1}{2}\%$ commission. How much was returned to the owner after paying \$5.00 storage?

An agent received \$21.00 commission for selling 120 barrels of potatoes at \$7.00 per barrel. Find the rate of commission.

A load of potatoes weighing 600 lbs. yielded 108 lbs. of starch. What per cent of starch was obtained?

What will 9 bushels of potatoes cost at 7 cents per quart?

English, including spelling and writing, proved a fertile field for the raising of patriotic ideas as the compositions in grades from the first through the sixth show. The botany, history, and geography of the potato were not neglected.

COMPOSITIONS—GRADES 2 to 6

I am a little brown potato. I have come to beg you to cook me, to eat me, and to like me. In this way you can save wheat and so win the war.

NANCY PEPE, 2B

Save the meat! Save the wheat! For dinner eat—potatoes!

SYDNEY GELFOND, 2B

Potatoes are cheap. Help to win the war. Eat potatoes and save wheat.

GILBERT DUNN, 2B

Potatoes are plentiful and cheap. They are healthy and will nourish me as well as wheat bread. In any of the many ways of cooking they taste fine. I want potatoes, not wheat bread, to help our Soldiers and Allies.

PAULINE SULTON, 3B

Many years ago white people did not know about the potato. The Indians of South America taught them it was good food. Now nearly everyone except the Chinese grow potatoes and eat them. We should eat more potatoes to save wheat for the soldiers.

HAROLD BOWENS, 3B

We are saving wheat to win the war. We are saving wheat by eating plenty of potatoes. We should eat plenty of potatoes because they are cheap. Potatoes are good for us because they contain mineral substance, water and starch. I am going to save my share of wheat by eating plenty of potatoes.

NELLY CASSULLO, 4A

I am a potato. My skin is yellow. My flesh inside is white. I grow underground of the roots of the plant. I contain starch, water, and iron. I am a wholesome food. I can be boiled, baked, mashed, or fried. Eat me and save wheat for our soldiers.

JAMES PUGH, 4A

I am pure white inside. I have a brown jacket and grow under the ground. On my body I have little scars called eyes. If I am planted in a mild or warm dark place I will sprout. When I am ripe my leaves decay. Then the farmer knows when I am ripe. A true Patriot will eat me and help win the war by saving wheat bread.

CECILIA GRIBBEN, 4B

The potato is a very healthy vegetable and was first heard of in the New World. The people of Europe did not appreciate the potato at first but used it as food for pigs and cattle and sometimes used it for the poor people.

In the olden times the Egyptians, the Greeks, and Romans did not know what the potato was until about the fourteenth century. Sir Walter Raleigh carried the first specimen to Queen Isabella. The potato was planted in her flower garden as a curiosity.

The potato is an odd vegetable. It is a tuber and grows under the ground. It is grown all over the world. Germany grows one-fourth of all planted. Potatoes are nourishing food. We must eat more potatoes to save wheat and help win the war.

ZENIA VASSILIADÉ, 5B

The potato was first found by white men; it is an American plant. Sir Francis Drake and Sir Walter Raleigh both found it in America. They were trying to find a place for it to grow. When they took it to Ireland they

found it would grow there good. The potato is a food plant and not grown by seeds. It is not so good to eat alone, but with richer food. We should now try to eat less wheat and a lot of potatoes to help win the war.

FRANCES FARRELL, 5B

We have potato week to make us think of those who are fighting for our benefit. We may not be able to send potatoes but we can send wheat, corn, and other cereals. In our school auditorium we have a sign that says, "Eat more potatoes and save wheat."

The food value of the potatoes are water, starch, and iron. The potato grows very quickly if the potato is planted, but if the seed is planted it takes one year for the little one and if you plant that you will get an ordinary potato the next year. It is planted about one-half a foot below the ground. The part we eat is the thickened stem which is called the tuber. It grows best in a temperate climate and most any soil, but best in sandy soil. The amount raised in the United States is second to the amount of cereal produced. The best known varieties are the Early Rose and the Burbank.

The people of South America were the first to raise potatoes. When the Spanish conquered Peru they found potatoes that the Aztecs had planted and took them back to Europe. The Burbank was first planted from a seed. Potatoes are the only ones of their family that are not poisonous and fit to eat. It belongs to the Night Shade. The most important use of the potato is as food and starch for the clothes and for liquor which we are trying so hard to get rid of. Let us be loyal citizens and do "our bit" to feed our boys.

HARLAN WOOLEY, 6B

OUTLINE FOR NATURE STUDY. GRADES 5 AND 6

Family: Nightshade (many members of this family poisonous).

Part of plant: Thickened stem, growing under ground—called tuber.

Use to plant: The starch, mineral matter and water provide nourishment for the new plant until it can send its roots down into the soil.

How planted: From piece of old potato containing at least one bud or eye. New varieties are raised from seeds. The best known varieties are Early Rose and Burbank. (Mr. Luther Burbank, when a school boy, raised the latter from the seeds of Early Rose.)

Value as a crop: It will grow on almost any kind of soil. It will grow in any country having a temperate climate. If grown from eyes, it will yield a crop the first year. It furnishes an excellent food for man and animals. In the United States the potato crop is next in size to the cereal crop. Beside being used as a food, it is manufactured into starch and alcohol.

Chemical composition: Mineral matter—Cut thin slice and hold to light; faint color under skin shows one mineral substance. Starch—Grate potato,

press through cloth. Allow sediment to settle from liquid, pour off liquid and test sediment with iodine. Blue color indicates starch.

For other interesting information: "How the World is Fed," Carpenter. Cornell Leaflets, Sept. 1912, and Sept. 1917.

Though unable to draft sewing and music in the service of the potato, art came gallantly to the front, for the drawing course provides for the drawing of some vegetable in each grade.²

Finally the potato reached the public distinction of an Auditorium exercise. A number of children gave a reading, telling interesting facts about the potato. Another group recited the enclosed recitation, at the end of which two girls held aloft the big poster (displayed in the Auditorium during the entire drive) flanked on either side by an American flag, urging every one to

EAT
POTATOES
AND
SAVE WHEAT

EXERCISE GIVEN IN ASSEMBLY DURING THE POTATO DRIVE BY 5B CLASS

(Each child holds up letter as she recites)

- P Stands for patriot, Who's doing his share
By eating potatoes, To send wheat "over there."
O Stands for oven, Exceedingly hot,
To bake our potatoes, "Please give me a lot."
T Stands for table, On which they are placed,
They make my mouth water, "Do give me a taste."
A Stands for American, If *you* really are one
You'll eat lots of potatoes, And just think it's fun.
T Stands for the trenches, Where our soldiers now stand,
Send them plenty of wheat, And they'll save our dear land.
O Stands for ocean, Across which they must go,
We must save a great deal, To help beat the foe.
E Stands for everyone, Little and great,
Let each do his share *now*, Before it's too late.
S Stands for soldiers, So big and so brave,
Eat potatoes for *your* share, See how much wheat *you* can save.

² A set of drawings is in the JOURNAL Office and will gladly be loaned to anyone interested.

STUDENT CONTRIBUTIONS

A STUDY OF GINGHAMS

RUBY MCTAVISH

Textile Chemistry Laboratories, Iowa State College

During a recent series of lectures here, a number of questions came to us from out in the state concerning the relative shrinkage and wearing qualities of different priced gingham. With a view to finding answers to some of these, the following short study was undertaken in connection with the above work on domestics. The materials chosen were: (1) group of odd plaids varying in price from $12\frac{1}{2}$ to 35 cents; (2) a group of small checked pieces priced from 10 to 25 cents; (3) two plain blue pieces, 15 and 25 cents, respectively, and one blue shirting at 15 cents. These gingham were purchased in February and were characteristic of the materials used for children's school dresses, house dresses, and apron materials whose shrinkage and wearing qualities are so important.

The same tests were carried out as are outlined in The Study of White Goods in the January JOURNAL, the same methods being used with the exception of the shrinkage. In this case the materials were all entered at 60°C., one set being removed at the end of an hour and the other after remaining immersed all night. This was done partly because no housewife would place gingham in boiling water and partly because we were interested in the difference which this factor might cause.

CONCLUSIONS

Without exception the number of threads per inch both warp and weft increased with the price of the material in all three groups. The shrinkage of the warp decreased with the price of the material but the results for the weft did not follow the prices. In most cases the shrinkage of the weft was not large enough to be considered in making a dress, but the shrinkage of the warp would have to be allowed for. The material which was left in for one hour showed a little more shrinkage than that which remained over night. The breaking strength did not

increase with the price of the material. No doubt this was due to the irregularities of the bleaching and dyeing methods employed in its manufacture. In other words there are a number of conditions which must be taken into consideration when studying colored dress materials such as gingham which do not arise when we are dealing with domestics. From these results we seem justified in concluding that the number of threads per inch has no direct bearing on the wearing qualities of gingham but does influence the shrinkage. The price asked for the material is usually directly proportional to the number of threads per inch and the best the purchaser can do is to judge the value of her purchase by the thread count and the suitability of the piece to her purpose.

Comparison of Materials

PRICE	WIDTH	THREAD COUNT (PER INCH)		SHRINKAGE (PER CENT)				BREAKING STRENGTH ¹	
				One hour in water		All night in water			
		Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Plaids									
\$0.12½	<i>inches</i> 26½	69.0	48.0	4.8	1.4	4.2	1.8	35.5	19.8
.19	32	75.0	59.0	4.4	3.8	4.5	3	36.2	21.6
.35	31	82.8	76.5	2.4	2.45	2	2.1	30.5	25.6
Checks									
.10	27	55.3	45.3	6	2.7	5.5	2.4	27	23.1
.12½	27	69.5	48.0	4.9	0.8	4.9	0.4	36.6	18.2
.15	27	73.0	68.0	4.2	3.5	3.7	3.3	34.5	25.4
.25	27	80.6	80.6	3.9	3.9	2.9	2.5	27.3	25.4
Plain blue									
.15	27	71.5	61	5.2	0.5	4.3	0.3	32.4	25.6
.25	31	82.0	74	4.5	3	3.29	2.83	34.3	24
Shirting									
.15	28	69.5	49	4.35	0.9	4.2	1.48	45.13	21.34

¹ For breaking strength an average was taken of 10 good results from a calibrated machine.

FOR THE HOMEMAKER

A CONSIDERATION OF THE CANNING PROBLEM

ELIZABETH F. GENUNG

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In these days of food conservation the canning of fruits and vegetables is occupying the attention of the press and the housewife. Every publication which deals with home problems, every periodical of any kind which reaches the household has devoted a page or a column to the canning problems. In view of this extensive publicity it has been noted with interest that many of the methods suggested and many of the articles written seem to have little if any scientific basis.

The successful preservation of any organic material is based on the science of bacteriology. A little over fifty years ago, a French scientist proved, after a long series of experiments, that all decay or putrefaction of organic matter was due to the activities of minute organisms. Since this discovery there has been much research and investigation by scientists in every country, and the facts which Louis Pasteur discovered have been repeatedly proved true.

It has been found that if all growth of microorganisms can be checked, or those organisms killed, that material will keep indefinitely. The problem of canning rests primarily on this basis: that all microorganisms on the food placed in the can must be destroyed, or their growth checked to such an extent that they will not cause trouble. There are various ways by which bacteria may be killed but the most practical for the purpose we are considering seems to be the application of heat.

There are three kinds of organisms which cause trouble in canned food, namely, molds, yeasts, and bacteria. Let us consider each briefly in order that we may learn the best methods of killing each.

Molds are familiar to the ordinary observer, for they grow on almost any organic matter and produce a fuzzy appearance. They may be of various colors,—green, yellow, black, or a grayish white. They reproduce and multiply by means of spores which grow on specialized

fruiting bodies; one plant producing millions of these tiny spores which float about in the air and alight and grow wherever conditions are favorable. These spores are quite easily killed by heat and a few minutes boiling will effectually destroy them. Molds prefer for their best growth starches or sugar, some moisture, and ordinary room temperature. They will not grow unless air is present. They do not injure the material on which they grow to any marked extent for some time, but they gradually break down the tissues and render the material soft, and unfit for consumption.

Yeasts are also familiar to the housewife for they are the principal factor in bread making, but aside from their usefulness in this line they often cause trouble in food materials in which they may be present. They are tiny, one-celled plants which reproduce and multiply usually by buds which grow on the mother cell. These yeast plants are found on all fruits and cause the fermentation of the juice which results in the production of alcohol. They prefer for their best growth sugar or starch, plenty of moisture, and a temperature a little higher than that of an ordinary room. They do not grow without air except when certain sugars are present from which they can manufacture oxygen. The chief trouble caused by these organisms is the fermentation of the starch or sugar which results in the production of alcohol and a gas known as carbon dioxide. They are readily killed by a few minutes boiling and the problem of controlling them is a comparatively easy one.

Bacteria belong to the smallest class of microorganisms and can only be seen through the highest power of the microscope. They exist in countless millions in nature and produce various changes in organic material. They reproduce and multiply by a simple cell division, one cell dividing into two cells and each of these in turn into two more. When conditions are unfavorable for the growth and multiplication of the cell, certain kinds of bacteria have the power of concentrating the cell contents into one part of the cell and surrounding this portion of the cell with a hard coat which is very resistant to heat, drying, or chemicals. This spore, unlike that of the yeast or mold, is not for the purpose of multiplication but merely to tide the organism over an unfavorable period. When conditions become favorable an ordinary cell known as the *vegetative* form develops from this spore. Bacteria generally require for their best growth surroundings with a small amount of protein and sugar or starch, and plenty of moisture. Certain forms live only in the presence of air; other forms live only in the absence of air; still others

are able to adapt themselves to either condition. Bacteria ferment sugars and break down tissues causing decay.

Effect of sugar and heat on the growth of bacteria. Microorganisms differ in the effect of sugar on their growth. Molds will grow quite readily on foods low in sugar and also on materials containing a high percentage of sugar, such as jellies or preserves. Yeasts, as a rule, are less liable to grow in foods that contain a large amount of sugar, but there are varieties which grow in jellies, syrups, and even molasses. The growth of bacteria, on the other hand, is prevented by high concentrations of sugar, though a small amount may in many cases encourage it.

Bacteria are not so easily disposed of as their cousins the yeasts and molds, for, although the vegetative cells are easily killed by heating, the forms which have the power of producing spores are very resistant to heating and drying. Certain spore forms have been found to resist boiling for several hours. It is a more difficult problem to destroy them than other forms of microorganisms. It is this problem that we shall deal with chiefly in the remainder of this discussion.

In considering the problem of canning we shall take up the problem only as it relates to the preservation of fruits and vegetables.

Canning fruit. In the preservation of fruit by canning, we have to remember that the principal kinds of microorganisms found on fruit are wild yeast and a few bacteria. Since yeasts are easily killed by heating, these organisms do not cause trouble except in rare instances when a few cells escape the vigilance of the housewife and ferment the fruit, causing the can to burst if not discovered in time. Bacteria are also found on fruit but the acidity of the fruit, the high concentration of sugar used in the preservation of the fruit in addition to the heating process, all combine to prevent the growth of the bacterial cell. Fruit is therefore comparatively easy to preserve if the housewife is careful to observe the following rules:

1. Select only sound fruit well matured but not over-ripe.
2. Put it, while fresh, into clean, sterile cans.
3. Select cans that have good seals and use only new rubbers.
4. Heat the fruit in the cans in the water bath for a few minutes, remove, seal, and cool. Do not remove cover after taking cans from water bath.
5. Store in a cool dark place.

Canning vegetables. The preservation of vegetables is much more difficult for several reasons. In the first place the vegetables grow much nearer the ground than most fruits and therefore have a large number of soil bacteria on them. These soil bacteria often form very resistant spores. Vegetables are not preserved in sugar or any agent that will check the growth of bacteria; so we must depend on heating alone to kill the bacteria present.

The safest way to can vegetables is to cook them in a pressure cooker. This cooker is so constructed that it is possible to raise the temperature of the interior of the can to several degrees above the boiling point and thus kill the resistant spores. Unfortunately pressure cookers are expensive for the ordinary housewife who wishes to preserve only a few surplus vegetables and may have only a few cans of each. She must resort, therefore, to the water bath method. There is no sure way to preserve certain vegetables by cooking them in a water bath, but some ways are safer than others. It must be distinctly understood that in all water bath methods there is a certain measure of risk, but the risk is greater in some methods than in others.

Methods compared. This discussion is not intended as a criticism of any method or methods but it is intended to place all the information available at the disposal of the housewife in order that she may be able to choose the method she prefers with full knowledge of the possibility of spoilage or other troubles it may involve.

Bacterial spores, as stated above, are very resistant to heat. They may be boiled for some time without lessening to any marked degree their vitality, so that when conditions are more favorable they will produce growing cells. Most vegetables allow the heat to penetrate very slowly to the center of the can and probably this never reaches the temperature of the water bath. The more compact the vegetable the lower the temperature will be in the center of the can. Cooking vegetables for several hours continuously in the cans will kill all vegetative forms of bacteria and may kill some spore forms but there is always the risk that some of the resistant ones may be left, and that these will find conditions favorable for growth and cause trouble after the material has stood awhile.

The method used in the bacteriological laboratories to sterilize culture media which cannot be subjected to high temperatures under pressure is what is known as the fractional or intermittent method. This is founded on the theory that after heating the spores are somewhat

weakened and, in favorable surroundings of food, moisture, and temperature, will quickly develop into vegetative cells. It has been found that in twenty-four hours this process will have developed the vegetative forms of most of the spores so that another heating at boiling temperature will kill most of the bacteria present and that a possibility of growth is lessened by a third heating at the end of another twenty-four hours. The length of the heating period is determined largely by the kind of material, the temperature at which it is heated, and the kind of heat applied.

The preservation of vegetables by this method, therefore, carries with it a certain measure of scientific proof—although it has been found that some vegetables such as greens are not always sure to be sterile after this treatment but a probable lesser percentage of spoilage in cans treated in this manner has lead the writer to advocate it as safer than the continuous process.

Much depends on the age and freshness of the vegetables. Young and tender vegetables allow the penetration of the heat much more rapidly and thoroughly than older and tougher material. The same is true of fresh vegetables as compared with stale ones. The size of the can must also be taken into consideration in counting the time of cooking, for it will take longer for the center of the can to reach its maximum temperature if the can is large. Much depends on the soundness of the material; the freedom from decay or disease will materially affect the keeping of the material.

Extent of research. Very little has been done experimentally in the field of canning. It is difficult to lay down a set of rules that will prove infallible under all conditions and with all workers. It is necessary that years of work be done on any problem involving scientific research before a definite rule or formula may be set down. The problem of home canning has scarcely been touched in the bacteriological laboratory; therefore, it cannot be said that any method is sure nor is it determined what will cause or prevent certain kinds of spoilage.

Articles which advocate various methods with every degree of assurance should not be regarded as infallible until they bear the stamp of scientific research, or until they can cite actual experimental evidence to back up the statements. Therefore, it will be well to bear in mind that such articles are written usually by a person who knows little about the scientific basis of that which he writes and who is only trying to encourage the housewife in a time of stress. The housewife should,

therefore, choose her method fully alive to the fact of the possibility of spoilage and she may choose intelligently between the shortest method with perhaps a greater possibility of failure or the harder method with the smaller chance of failure.

Necessary precautions. In the preparation of the vegetables for the cans there are many steps that have a certain value. The material must be clean and free from decay. After the vegetables have been washed they are blanched in hot water. This blanching consists in boiling or steaming the material a few minutes. The chief value of this process is that it removes any objectionable acids or flavors and also renders the vegetables more pliable for packing in the cans. It has very little if any value from the bacteriological side. No experiments have been carried on to test the exact effect it may have on the bacterial spores but enough is known of the nature and resisting power of these spores to draw the conclusion that this short boiling process does not materially affect the spores.

After the material is removed from the blanching water it is plunged for a few seconds into cold water. The reasons given for the process vary, but it is generally believed that it sets the color. At least it makes the material easier to handle in packing in the cans. It has been claimed that this process "shocks the spores," but up to date there is no scientific data to back up this assertion, and bacteriologists are a bit skeptical about its effect on the spores. It probably has nothing to do with the keeping quality of the material.

When the cans are ready for the water bath they should not stand in a warm kitchen before cooking, as the organisms are present in large numbers and their activities may cause disagreeable flavors in the food material. If it is necessary to leave the cans a short time, it is better to keep them cool and not to add the hot water until just before cooking.

The cooking of the material is also important. Remember that it takes a long time for the center of the can to reach its maximum temperature, and that allowance must be made for the can to heat up. Therefore, the period of cooking should never be shortened nor should time be counted before the water in the bath boils briskly. It should not cease boiling at any time during the cooking period. When the cans are removed from the bath they appear to be boiling but this bubbling is not actual boiling. It is caused by the difference in pressure of the interior of the can and the surrounding air.

Care of canned goods. When the cans are cooled so they may be handled readily, they should be placed in cold water or near a cool window in order that they may cool as rapidly as possible to a temperature below that which the bacteria require for their best growth. Cooking the cans in a water bath for a period may not sterilize the material but it may weaken the bacteria so that they will not grow unless all conditions are favorable. We have the temperature conditions under our control and that should be low enough to discourage any kind of activity. Therefore, cans stored in a cool place will keep better than cans stored in a warm place. The quicker cans are placed in cool surroundings the more apt the material will be to keep. The writer has proved this quite satisfactorily by keeping cans in an ordinary room for several days, then placing them in a bacterial incubator. The cans which often showed no sign of spoiling while in the room would spoil in a few days as soon as the temperature became right for bacterial growth.

KINDS OF SPOILAGE

There is very little data to be had regarding the kinds and causes of spoilage in canned foods. Some work has been done on peas and corn at the request of commercial canners during some particularly trying time, but the spoilage of canned vegetables is practically an untouched field. There are three kinds of spoilage commonly recognized at present: (1) Fermentation, (2) flat sour, (3) putrefaction.

Fermentation is the name given to the spoilage which occurs with a production of gas. In the commercial world this is known as a "swell," because the cans become distended and bulge at the ends. Fruit is especially subject to this kind of spoilage owing to the fact that the organisms causing fruit to spoil are usually yeasts and they always produce gas. Certain bacteria are gas producers, and since they often occur on vegetables this kind of spoilage is frequently found in cans of vegetables. Probably this spoilage is due to a number of different organisms and may be accompanied by other troubles that are lost sight of in the interest which the gas affords. Many of these gas formers are spore formers, and so such fermentation usually comes from improper sterilization. Glass cans are frequently broken or at least the seal is loosened by the gas and such spoilage is laid to poor sealing. Since these organisms are usually anaerobic, that is, they prefer to live without air, the conditions in the cans are just what they need and growth

takes place quite readily. Cans should be examined every few days for a month after storing to see if any signs of gas are present. This form of spoilage is quite easily recognized by the presence of gas bubbles and excess pressure on the cover which loosens the seal.

Flat sour is the name given to the spoilage which occurs with a production of acid but no gas. In commercial canning the name was given to designate those cans which were spoiled but no swelling or bulging had occurred to indicate trouble until the cans were opened, when the material was found to be sour and unfit for consumption. This spoilage is doubtless due to several different organisms and may be of various kinds. It has never been investigated to any extent and little is known of its nature. The writer has isolated spore bearing organisms from cans which have soured, and so has come to the conclusion that it is due to improper sterilization. In glass cans this trouble can be readily recognized in many cases by a milky sediment in the bottom of the can; the material becomes slimy and has a sour or acid taste. Certain forms, however, do not manifest themselves in this manner and cans which have no signs of spoilage will be found to taste sour or disagreeable. This is especially true in asparagus and greens. Only a person expert in this work can detect spoilage of this kind by observation alone. As stated above, no work has been done on this form of spoilage and whether it is injurious to eat such material is not known. In the earlier stages the flavor does not seem to be badly affected and is often eaten by those unfamiliar with this kind of spoilage. This trouble cannot be recognized by the condition of the seal for since no gas is produced the seal remains unimpaired and cans badly spoiled will be as difficult to open as those which are uninjured.

Putrefaction is simply decay of the food material in the cans. It manifests itself sometimes by the production of vile smelling gases, or by the disintegration of the food tissues. This form of spoilage may be due to imperfect sterilization but it is more often found in cans which are imperfect or where the seal is poor. There is little difficulty in recognizing this form of spoilage and the cans are usually in such a condition that they are discarded at once.

Botulism. There has been some agitation recently over the occurrence of Botulism from canned vegetables. While there is a small danger from infection of this kind, the number of cases on record is exceedingly small compared with the vast numbers who use canned foods. The organism causing the trouble is a bacillus which lives on foods rather

high in protein content. It produces a toxin which is poison, but which happily is readily destroyed by a few minutes boiling. The organism forms spores which are less resistant than spores usually found in the cans. Since the temperature of the water bath is less than in the pressure cooker, it may be possible that the occurrence of the poison might be found more frequently in cans cooked at the boiling point. In any case the risk is small and may be entirely obviated by boiling the canned article a couple of minutes before eating. It is never advisable to eat any article where there is suspicion of spoilage. Flat sour is not necessarily poisonous but there may be poisons present and it is not safe to eat such food.

THE RELATION OF VEGETABLES TO SPOILAGE

Here again we are treading on unknown ground. Nothing has been worked out in this field as yet, but some observations made on a few cans in starting some work on this problem may not be amiss.

Greens seem to be somewhat difficult to can successfully. They are quite subject to flat sour and seem to be harder to sterilize than some of the other vegetables. This may be due to two causes; first, they grow very near the soil and there may be a higher content of the soil and water bacteria on them, and second, they are very pliable after they are blanched and may be packed very tightly in the cans, and since heat does not penetrate this material very easily it is very probable that the center of the can does not heat up to a very high temperature and thus the spores remain uninjured and grow as soon as conditions permit. It would be well not to pack the cans too tightly and to be certain that they are heated thoroughly in the cooking process. Greens are more apt to spoil by the continuous process than by the intermittent, but even the latter is not sure. The term "greens" is intended to apply to such materials as dandelions, spinach, chard, asparagus, and so forth.

Peas are more difficult to can than is generally supposed. They seem to resist heat penetration and the more mature they are the more difficult it is for the heat to penetrate to the center of the can. They develop both gas fermentation and flat sour. They should never be allowed to stand outside of the shell over night before canning as they are liable to develop a bad flavor. This has been termed flat sour but is probably not a bacterial trouble but due to enzymes present in the peas which under these conditions cause bad flavors and injure the texture

of the vegetable. Unless peas are very young and tender it is better to cook them intermittently if one wishes to avoid as far as possible the possibility of spoilage.

Beans are not considered so difficult to can as peas by some people, but no experiments have been tried to prove this. String beans develop flat sour quite as frequently as many other vegetables and care must be taken to prevent this. The beans should be young, tender, and free from disease. Unless they are very young the intermittent method is the safer. Heat probably will penetrate beans more readily than peas and thus render sterilization somewhat easier. To insure the conservation of all the nutrition possible they should not be cut until after they are blanched and cold dipped.

Corn seems to be very difficult to can successfully. This is due no doubt, to the fact that it can be packed very tightly in the cans and that heat penetrates the material very slowly. There is also frequently found on corn an organism which produces an immense amount of gas in a short time. Corn, therefore, is very apt to ferment and burst the cans. Corn will also develop flat sour and become spoiled in this way. It is very important that this vegetable be as fresh as possible when canned and that it should not be allowed to stand more than an hour before cooking after it is ready for the can. The gas producing organism mentioned above will grow quite readily in the prepared material and the housewife often repents of the delay when the cans burst on heating. If the weather is very warm it is best to cool the cans down as rapidly and as low as possible between the first and second cooking in the intermittent process. In the opinion of the writer corn should always be canned by this process and as an extra precaution, the first cooking should be at least one hour and a half.

Beets do not seem to be so difficult to can successfully as the other vegetables we have been considering. They are blanched for a longer period and seem to be quite easily sterilized by the single process. This may be due to the fact that the heat penetrates more easily, and the longer blanching period may weaken the spores. It is probably not due to any marked extent to the sugar in the beets. Beets develop flat sour easily recognized by the change in color from a bright red to a muddy brown, with a thick whitish sediment in the bottom of the can. No doubt there are other forms of spoilage but the writer has not studied them enough to be familiar with them. Both beets and carrots should be sterilized by the continuous process.

SUMMARY

There are certain underlying rules and principles that apply to all canning and it might be well to mention them in conclusion. The covers of the cans should never be removed after the material has been cooked in the cans for the required period. Rubbers should be placed on the cans before processing and should not be removed unless they are injured. If it is necessary to open the cans they should be recooked at once for at least thirty minutes. If the water boils out of the can it is not necessary as far as the keeping quality is concerned to replace it. If the food is sterile it will keep whether it is covered with water or not. One may preserve a can half full of material quite as successfully as one completely filled, if it is properly sterilized. The old idea that there must be no air in the cans is a fallacy, for if the food is sterile the air is also sterile and sterile air cannot cause spoilage.

Since it is a wise plan not to allow any more bacteria in the cans than possible, cans should be sterilized, or at least partially so, before using. It is best, therefore, to boil all cans at least fifteen minutes before filling them; a longer period will add to the efficiency of the can. The cans should be filled while they are hot and if they are removed from the hot water before they are used the covers should be placed on them. Can rubbers should be placed in hot or boiling water a few minutes before using.

Housewives could aid the experimental work greatly by observations which they make in their own kitchens. At present definite information as to the success of the various methods of food preservation now being used and advocated is meager. If the housewife would make notes of the method used, the number of cans treated, the amount of spoilage, if any, and the kind of spoilage, and send such information to the county agent or the state experiment station, she would be doing a great deal to insure future success in the canning problem and to eliminate the possibility of spoilage. It takes not months but years for the laboratory to work out these problems and it involves a great expenditure of time and material. Housewives instead of concealing the fact of spoilage should take pride in aiding the investigators by sending the much needed information.

EDITORIAL

The Day's Food in War and Peace. If, as now seems possible, the special request of the Food Administration after the next harvest will be not so much for substitution of various kinds as for cutting down our total consumption in order that we may have a safe reserve, it will be even more necessary than it is now for us to know exactly what our food requirements are, that we may neither use more than we need nor, in our endeavor to be careful, lessen our efficiency by using too little.

The United States Food Administration, in coöperation with the Department of Agriculture and the Woman's Committee of the Council of National Defense has just issued a series of lessons called "Food in War and Peace," giving simple and brief statements of the kind and quantity of food needed for health, and of the ways in which changes may safely be made so that the requests of the Food Administration for saving, substituting, and using the various foods may be intelligently, rather than arbitrarily, obeyed.

The names of the writers of these papers are all familiar to the readers of the JOURNAL. Mr. Hoover has explained the present situation in "Food and the War;" Dr. Lusk is the writer of "Food for a Day;" Dr. Taylor has told about Wheat, and why we should save it. Other lessons have been written by Dr. Langworthy, Miss Hunt, Mr. Brand, Dr. McCollum, Dr. Mendel, and Dr. Ruth Wheeler. Miss Ida Tarbell has written the introduction to the lessons.

The lessons were edited by Miss Atwater, of the Department of Agriculture, and Mrs. Norton, of the JOURNAL, who have added practical suggestions and some recipes. References to government publications are given, and a list of lantern slides that may be obtained from the United States Food Administration.

The lessons may be obtained from the Federal Food Administrator in each state, as long as the limited free edition lasts. A copy has been placed in every library.

The Southern Home Economics Association will meet at Blue Ridge, N. C., August 24-31. Half day sessions will allow time for rest and recreation at a delightful mountain resort. For reservations write Mr. C. Fletcher Guillian, Blue Ridge, N. C.

BOOKS AND LITERATURE

Mechanics of the Household. By E. S. KEENE. New York: McGraw-Hill Book Company, 1918, pp. 391. \$2.50. By mail of the Journal, \$2.65.

Professor Keene in *Mechanics of the Household* approaches the study of the mechanisms, appliances, and physical phenomena of the home from a somewhat new angle. He states "The scope of the work is such as to present, first, the use of household mechanical appliances." The formal boundaries and the formal statement of physics receive only incidental attention. In educational circles one hears much about the advisability of reversing the old order of teaching science from principles first and applications later to applications first and principles later.

The subject-matter of this book will be indicated by the chapter headings,—the steam heating plant, the hot-water heating plant, the hot-air furnace, temperature regulation, management of heating plants, plumbing, water supply, sewage disposal, coal, atmospheric humidity, ventilation, gaseous and liquid fuels, electricity. From the point of view of educational reform it seems advisable that many science books of this type should be written. The recent text-books in general science for use in the high school contain a wealth of suggestive material for such treatment. *Mechanics of the Household* has been written to meet the needs of more advanced students pursuing practical science courses.

The chapter on the steam heating plant deals with the following,—heat of vaporization, steam temperature, gage pressure, absolute pressure, two pipe system, separate return system, overhead or drop system, water filled radiators, the house heating system boiler, boiler trimmings, the water column, the steam gage, the safety valve, the draft regulator, rules for proportioning radiators, proportioning the size of mains, forms of radiators, radiator finish-

ings, pipe coverings, vapor system of heating. This chapter covers thirty-six pages with thirty-one cuts and diagrams including a number of sections of radiators, furnaces, and a section of a one-pipe steam installation.

The first eighty-one pages are devoted to a discussion of steam, hot-water, and hot-air systems, temperature regulation, and management of heating plants. A hundred pages are devoted to humidity, ventilation, and fuels. The book is clearly written and well printed. Most of the diagrams are of good size and very helpful.

For purposes of general instruction a further elimination of minor technical detail may seem advisable to some, but those who are acquainted with the prolixity of the standard engineering treatises will not be too critical in this regard. In explaining the plan the author states "It is not exhaustive, neither does it touch many of the secondary topics that might be discussed in connection with the various subjects. It does, however, describe at least one representative piece of each type of household apparatus that is used in good practice."

The emphasis placed upon gas appliances for isolated homes as compared with those for the city gas supply renders that treatment more applicable to rural localities. More attention might be given to recent improvements in lighting and electrical appliances for the home. At the present time the gas engine and the automobile appear to be more important as household necessities than the gasoline gas generator. The chapters on water-supply, plumbing, and sewage disposal are very satisfactory as type of clear and illuminating treatment. This book is a welcome pioneer in its field and it deserves an extensive use in household physics classes as well as among intelligent housekeepers generally.

F. F. GOOD,
Teachers College, Columbia University.

The Cost of Food. By ELLEN H. RICHARDS, Third edition, revised under the direction of John F. Norton. New York: John Wiley and Sons, 1917, pp. 137. \$1.00. By mail of the Journal, \$1.10.

All admirers of Mrs. Ellen H. Richards—and who of us does not classify under that head?—will be delighted to have one of her books restored to usefulness. Of the four books on cost:—Cost of Shelter, Cost of Clothing, Cost of Living, and Cost of Food, the last was the one most out of date. Although other prices have changed too, none other has risen to the extent that the price of food has advanced. While at present even magazine literature can hardly keep pace with our changing conditions, this revision uses prices recent enough to have meaning for us.

Professor Norton has worked very skillfully in his revision. The text itself has been left almost unchanged except for the necessary changes in figures. Looking it over, one realizes, perhaps as never before, how far-seeing Mrs. Richards was in her general statements. At the end of the book, two chapters have been omitted,—one of the Dietary Computator from which Mrs. Richards hoped much but which in practice proved cumbersome, and one on Diet for Incipient Tuberculosis.

The changes in this edition include statements in regard to vitamins, the correction of percentages in food analysis as a result of more recent experiments, the new standard of calorie requirement for children, menus and valuable data on cost more up-to-date than that in the old volume, and, of course, references to modern authorities, and an excellent bibliography.

Material adding greatly to the value of the book is found in such suggestive menus as the "Penny" luncheons on pp. 30-31, in Gephart's study of what boys ate in a boarding school on pp. 41-42, the Budget Allowance for Food in Public Institutions in New York, in 1915, on p. 65, Luncheons costing 10 cents a person prepared by school children, pp. 89-90, Menus for Families of Moderate Means, pp. 103-105, the Hundred Calorie Portion table, p. 123, and the grouping of costs of food pp. 124-125.

On page 57 the statement that 25 per cent of the family income is sufficient for food, is allowed to stand unchanged—perhaps because the sentence begins "I have elsewhere estimated that;" but it is certainly misleading. On page 60, Dr. Norton has changed the meaning of one of Mrs. Richards' sentences slightly by giving the "mean" as 16. Mrs. Richards' figure was intended to be a "mean" between the cost for "those of whom the world has nothing more to hope" and the children; not the mean of the two groups of children. However, the error is insignificant.

MABEL T. WELLMAN,
Indiana University.

War-time Breads and Cakes. By AMY L. HANDY. Boston: Houghton, Mifflin Co., 1918, pp. 66. \$.75.

This is a small book containing recipes for "war breads and cakes" which the author gives as the result of her own experiments in the use of wheat substitutes. In a majority of the recipes whole wheat flour is the principal substitute used although there are a large number in which cornmeal, oatmeal, rice, rye flour, mashed potatoes, and squash take the place of part or all of the wheat flour. The book is probably most valuable to the housewife in that it suggests how she may modify her own recipes.

ELIZABETH W. MILLER,
University of Chicago.

The Belgian Cook-Book. Edited by Mrs. Brian Luck. New York: E. P. Dutton & Co., 1915, pp. 151. \$1.00.

The Belgian Cook-Book containing recipes and delightfully different things suggested by the Belgian refugees in England, shows that not to the French alone belongs the reputation of cooking economically, originally, and deliciously.

The recipes are unusual without being too much trouble to prepare. Cooked Lettuce, Apples and Sausages, Saffron Rice, Hawthorn Cordial, Fish and Custard, Yellow Plums and Rice, Strawberry Fancy, Military Prunes, Quince Custard—are a few of the dishes given.

FLORA G. ORR.

BOOKS RECEIVED

- Camp Cookery.* Ava B. Milam, A. Grace Johnson, and Ruth McNary Smith. Portland, Oregon: The J. K. Gill Company, 1918, pp. 108. \$50.
- Caroline King's Cook Book.* Caroline B. King. Boston: Little, Brown & Company, 1918, pp. 275. \$1.50.
- Coöperation, the Hope of the Consumer.* Emerson P. Harris. New York: The Macmillan Company, 1918, pp. 328. \$2.00.
- Everywoman's Canning Book.* Mary B. Hughes. Boston: Whitcomb and Barrows, 1918, pp. 96. \$.75.
- Food Preparation.* Beth Warner Josserand. Peoria, Ill.: The Manual Arts Press, 1917, pp. (Part I) 148, (Part II) 142. \$1.25 each.
- Social Control.* Volume XII of the Publications of the American Sociological Society. Univ. of Chicago Press.
- Three Acres and Liberty.* Bolton Hall. New York: The Macmillan Company, 1918, pp. 276. \$1.25.

PAMPHLETS RECEIVED

Issued by the United States Department of Agriculture:

- Circulars from the office of the Secretary in regard to the Supply of: *No. 96, Sugar; No. 97, Lard; No. 98, Canned Salmon; No. 99, Miscellaneous Cereal and Vegetable Foodstuffs; No. 100, Wheat and Flour; No. 101, Miscellaneous Animal Food Products. Also circular No. 106, Use Potatoes to Save Wheat.*
- Control of Diseases and Insect Enemies of the Home Vegetable Garden.* W. A. Orton and F. H. Chittenden. Farmers' Bulletin No. 856.
- The Farm Garden in the North.* James H. Beattie. Farmer's Bulletin No. 937.
- Parcel Post Business Methods.* C. C. Hawbaker and John W. Law. Farmers' Bul. No. 922.
- United States Food Leaflets: *No. 11, Milk, The Best Food We Have; No. 12, Save Fuel; No. 13, Let the Fireless Cooker Help You Cook; No. 14, Dried Peas and Beans; No. 15, Save Sugar.* (Issued by U. S. Dept. Agr. and The Food Administration.)
- Use of Wheat Flour Substitutes in Baking.* Hannah L. Wessling. Farmer's Bulletin 955.
- Value of a Small Plot of Ground to the Laboring Man.* W. C. Funk. Bulletin No. 602.

Issued by the Department of the Interior, Bureau of Mines:

- Five Ways of Saving Fuel in Heating Houses.* Henry Kreisinger. Technical Paper 199.

Issued by the Department of the Interior, Bureau of Education:

- Lessons in Community and National Life,* Community Leaflets Nos. 10-21.
- The Preparation and the Preservation of Vegetables.* Henrietta W. Calvin and Carrie A. Lyford. Bulletin, 1917, No. 47.
- Report of the Commissioner of Education for the Year Ended June 30, 1917.* Volumes I and II.

Issued by the Department of Labor, Children's Bureau:

- Milk, The Indispensable Food for Children.* Dorothy Reed Mendenhall, M.D. Care of Children Series No. 4. Bureau Publication No. 35.
- Save 100,000 Babies.* Children's Year Leaflet No. 1.
- Studies of Use of Milk by Families Having Little Children.*

Issued by the United States Public Health Service:

- The Bacteriological Examination of Water.* H. E. Hasseltine. Reprint No. 432 from the Public Health Reports.

The Control of Communicable Diseases. Reprint No. 436 from the Public Health Reports.
Industrial Efficiency. Frederic S. Lee. Reprint No. 448 from the Public Health Reports.
Mitigation of the Heat Hazard in Industries. J. A. Watkins. Reprint No. 441 from the Public Health Reports.
Public Health Administration in Russia in 1917. C.-E. A. Winslow. Reprint No. 445 from the Public Health Reports.

Issued by the Department of Commerce, Bureau of Standards.
Safety for the Household. Circular of the Bureau of Standards, No. 75, 1918.

Issued by the United States Fuel Administration:
America's Coal Problem in 1918. Harry A. Garfield. Publication No. 23.

Issued by the Federal Board for Vocational Education:
Agricultural Education. Agricultural Series No. 1.

Issued by the Extension Division, University of Wisconsin:
Food Conservation through Utilization of Garbage Waste. Serial No. 900, General Series No. 690.
Parent-Teacher Associations. Edith E. Hoyt. Serial No. 915, General Series No. 704.
Industrial Education and Dependency. John R. Commons. Serial No. 916, General Series No. 705.

Issued by the Extension Service, Ohio State University:
Meat Substitutes. Extension Bul., Vol. XIII, No. 8.
Saving Wheat. Anna R. Van Meter and Grace Linder. Extension Bul., Vol. XIII, No. 9.
Utilization of Food. Recipes. Extension Bul., Vol. XIII, No. 10.

Issued by University of Rochester and Mechanics Institute:
Tested Menus and Recipes Based on a Low Cost Dietary, Extension Bul., Vol. I, No. 2.
Menus for National Needs. Extension Bul., Vol. I, No. 3.

Issued by the University of Chicago Press:
War Papers. No. 1, *The Threat of German World-Politics*, Harry Pratt Judson; No. 2, *Americans and the World-Crisis*, Albion W. Small; No. 3, *Democracy the Basis for World-Order*, Frederick D. Bramhall; No. 4, *Sixteen Causes of War*, Andrew C. McLaughlin; No. 5, *The War and Industrial Adjustment*, Harold G. Moulton.

Issued by the American Red Cross, Department of Civilian Relief:
Handbook of Information for Home Service Sections. A. R. C. 207.
Manual of Home Service. Second Edition. A. R. C. 201.
This Side of the Trenches with the American Red Cross.
Report of the Director, Department of Civil Affairs, American Red Cross in France, Feb. 1, 1918.

Issued by the publishers listed:
Americanization of Women. Frances A. Kellor. Information Service of the National Americanization Committee, 29 W. 39th St., New York City.
Bulletin containing *Save Wheat*, *The Month's War Work in Foods*, *Recipes from the Woman's Italian Club.* Women's Municipal League, Boston.

- The Country Church as a Social Center.* Vol. I, No. 3, Service Bureau Bul., Mississippi Agr. and Mechanical College.
- The Farm Vegetable Garden.* H. O. Werner. North Dakota Agr. Experiment Station, Agricultural College, N. D.
- Food Charts:* A graphic exhibition of the *Why* and *How* of food values. Arranged in simple, comprehensive form to insure universal understanding. Compiled by Lucy H. Gillett, New York Association for Improving the Condition of the Poor.
- Food for Service.* Annie L. Weeks. United Charities of Rochester, N. Y.
- One Week's Budget for Family of Five.* Canada Food Board, Ottawa, Can.
- Summer Teacher Training Courses.* National Society for Vocational Education, 140 W. 42d Street, New York City.
- The Uses of the Peanut on the Home Table.* Jessie Rich Arms. Bulletin 17, Department of Home Economics, Florida State College for Women, Tallahassee.
- War Vegetable Gardening and the Home Storage of Vegetables.* Two parts. National War Garden Commission, Maryland Building, Washington, D. C.
- Wheatless-Meatless Meals.* Helen Hammel Harlan. Bul. Series I, No. 50. American School of Home Economics, Chicago.

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- New Fabrics for War Use. *Literary Digest*, Mar. 1918.
- Curious Cloth Testing. *Scientific American*, Feb. 16, 1918.
- Modern Designs from Ancient Fabrics. *Scientific American*, Feb. 16, 1918.
- Patriotic Fabrics. *Vogue*, Mar. 1, 1918.
- Satin Brocade, Metropolitan Art Museum. *Decorative Furnisher*, Mar. 1918.
- Batik Art. *Vogue*, Mar. 15, 1918.
- The Art of Persia—Brocades and Tapestries. *Art and Decoration*, Mar. 1918.
- Batik, Francis Gifford. *Color Trade Journal*, April, 1918.
- Ancient Egyptian Textile Design, H. H. Manchester. *Textile World Jour.*, April 13.

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- Tables: Decorative Importance of Unity in Architecture and Decoration. *Arts and Decoration*, April, 1918.
- Considering the Dining Room. *Touchstone*, April, 1918.
- Roofs (Old and New). *Touchstone*, April, 1918.
- Your Country House Living Room. *House and Garden*, April, 1918.
- A Little Portfolio of Good Interiors. *House and Garden*, March, 1918.
- How to Buy Pictures. *House and Garden*, March, 1918.
- Chintzes and Cretonnes. *The Independent*, April 6, 1918.
- Tripod Table and Stands. W. Dyer, *Country Life*, April, 1918.
- Spring Fabrics: Cretonnes, Table Runners, Variety of Curtain Bindings. *House and Garden*, Mar.
- Oriental Paper for Occidental Walls. *House and Garden*, Mar.
- Ideal of Informality in Furniture. *Inter Studio*, Mar.
- Mobilizing Industrial Design. *Good Furniture*, Mar.

EDUCATION

Home Economics Studies in Grades Seven to Twelve. Anna M. Cooley and Others, *Teachers College Rec.*, Mar.

A plea for Closer Correlation between the Fine Arts and the Industrial Arts in Public Schools. Clara Torrey Clement, *Indus. Arts Mag.*, May and June.

The Practical Arts in General Education. David Snedden, *Teachers College Rec.*, Jan. and Mar. (Contains proposals for household arts, including classification of projects and topics for grades 7-10).

Prevocational Training for Girls as Conducted by the North Bennet Street Industrial School, Boston. George Greener, *Indus. Arts Magazine*, May and June.

Pedagogical Literature Dealing with Home Economics. *The School Review*, Mar.

Pennsylvania's First Trade School for Girls. Cleo Murtland, *Indus. Arts Mag.*, Apr.

University Extension Teaching in its Relation to the Conservation of Health. Winifred Hathaway, *Amer. Jour. Soc.*, Mar.

FOODS AND FOOD CONSERVATION

Animal Foods. ¹⁰⁰/₁₀₀ Their Composition and Fuel Value. John Phillips Street, *Mod. Hosp.*, May.

Economical Preparation and Serving of Food. Lulu Graves, *Mod. Hosp.*, May.

Food Conservation and Health. Thomas Dickinson, *Mod. Hosp.*, May.

Food in Families of Limited Means: A Study of Home Facts in Two Hundred Boston Families. Michael M. Davis, Jr., *Survey*, Jan. 12.

Our Food and Our Bodies. H. E. Barnard, *Nat. Food Mag.*, Feb.

Food Wastes: Some Causes and Remedies. Lucius P. Brown, *Amer. Food Jour.*, Feb.

Fraudulent Egg Substitutes. *Amer. Food Jour.*, Feb.

The Ash of Our Foods. George L. Teller, *Amer. Food Jour.*, Mar.

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Sugars Other than Cane or Beet. George L. Teller, *Amer. Food Jour.*, Jan.

Government Tests in Handling Lettuce. *Amer. Food Jour.*, May.

Sugar Substitutes in Jelly-Making. Leonore Dunnigan, *Amer. Food Jour.*, May.

Why Save Food? Raymond Pearl. *Amer. Food Jour.*, May.

Keep Bees and Save Sugar. Earl D. Hay, *Indus. Arts Mag.*, June.

MISCELLANEOUS

The Lives and Health of Mothers and Children—How Can We Save Them. Edward P. Davis, M.D., *Mod. Hosp.*, Apr.

The Children's Clearing Bureau of New York. Frank C. Brooke, *Mod. Hosp.*, Feb.

Suggestions for Home or Backyard Playground Apparatus. J. E. Painter, *Indus. Arts Mag.*, May.

Junior Red Cross Work in a High School. C. E. Partch, *Indus. Arts Mag.*, June.

Junior Red Cross Activities in the Indianapolis Elementary Schools. Florence Fitch, *Indus. Arts Mag.*, May and June.

The Spirit and Deed of Home Service. Mary Willcox Glenn, *Survey*, May 18.

A Study of the Development of Bacteriology as a Basis for Home Economics. J. E. Greaves, *Amer. Food Jour.*, Jan.

How to Avoid Colds. Louis Neuwelt, *Amer. Jour. Nursing*, Feb. and Mar.

High Standards of Living at Low Cost by Coöperative Housekeeping. Anna Matthews, *Teachers College Rec.*, Jan and Mar.

The Food Habits of a People Without Nerves. Henry C. Tracy, *Amer. Cookery*, Apr.

Scientific Care of the Silver. L. Ray Balderston, *Housewives Mag.*, Apr.

NEWS FROM THE FIELD

The National Society for Vocational Education, formerly the National Society for the promotion of Industrial Education, met in Philadelphia February 21 to 23. The program centered around four main topics, (1) Education for War Industries, (2) Administration of the Smith-Hughes Act, (3) Training and Employment of Women, and (4) Rehabilitation of the Disabled.

Under "Education for War Industries," representatives from the Pennsylvania Department of Labor, the Emergency Fleet Corporation, the Bethlehem Steel Company, and the Federal Board for Vocational Education outlined methods for securing and training employees for farm and factory to meet the demands of the present emergency.

An afternoon and evening were devoted to discussion of the problems of administration under the Smith-Hughes Act, the necessity for coordinating the new educational machinery created by that act, and the training of teachers to develop it. Mr. J. P. Munroe reviewed the provisions of the act, and the difficulties encountered by the Federal board in interpreting it. He emphasized the fact that, according to the law, the training must be for wage earning, but that the aim is to make it as broad as possible and not merely utilitarian. Mr. L. S. Hawkins, also of the Federal Board for Vocational Education, called attention to the necessity for professional, technical, and practical experience on the part of teachers, and to the need for an adequate system of practice teaching.

In discussing "Women in Industry," Mrs. A. L. Burdick gave four essential characteristics of an occupation for which training might be offered to women: "(1) It must have teachable content, i.e., it must not be 'a job which just anybody can do', it must take an appreciable time to learn, and it must have

a definite body of knowledge and a progression in its processes. (2) It should not be highly seasonal. (3) It should offer prospects for wage advancement. (4) The occupation must be able to absorb a sufficient number of workers so that training does not overstock the market."

Mrs. Hilda Mulhauser Richards, of the Federal Employment Service, emphasized the fact that there is no shortage of male labor and consequently no reason why women should be hurried into industries in which the work is much better suited to men.

One session was devoted to a discussion of the rehabilitation of disabled soldiers.

Alabama Home Economics Association. On February 1-2 the fourth annual conference met in Montevallo, with Miss May Hansis presiding. The program centered about the stirring events of the day as they affect home economics. The noteworthy addresses were those by Miss Anna E. Richardson, of the Federal Board for Vocational Education, Washington, D. C., and Mr. Robert H. Mangum, Federal Food Administrator, Montgomery, Ala. Prominent club women and home makers, as well as teachers, were in attendance.

At the annual meeting of the Alabama Educational Association, in Birmingham, March 29, the Home Economics Section met at noon for a joint luncheon with the Industrial Arts Section. Among the guests and speakers at this time were Miss Julia Lathrop, National Director of Child Welfare, and Dr. L. S. Hawkins of the Federal Board for Vocational Education. In the afternoon the Home Economics Association convened for a program and business meeting. About fifty were present and a most enthusiastic meeting resulted.

The New England Home Economics Association. Mrs. Schuyler F. Herron, President, has held five meetings during the last year. In October, Miss Arnold extended greetings, Miss Gunderson of Amherst spoke on Extension Work, and Dr. Graham Lusk on Calories in Common Life. Exhibits prepared by the Women's Municipal League, Food Facts Bureau, were shown and explained by Miss Blood. Miss Guerrier of the United States Food Administration, told of food conservation work through libraries, and Miss Morris, of food conservation in Boston Schools. Miss Roof and Miss Pulsifer explained the work of the city leader, while Miss Goodrich discussed food conservation in institutions, and Mrs. Cannon, practical conservation in the home.

The November meeting included a report, by Mr. Davis, of investigation among the poor, and an "experience meeting" followed, with reports from various agencies.

In December, Professor Carver of Harvard spoke on Economics of the Food Supply, Mt. Bullard, on Changes in Food Production, and Miss Arnold, on Coöperation with Washington.

The February topics were Clothing and the War, by Mrs. Woolman, Fuel and the War, presented by Mr. Loring, and Food and the War, by Mrs. Donald.

In March, Dr. McCollum spoke on Milk as a Protective Food.

Ellen H. Richards Fund Over \$5000. The Trustees of the Richards Fund received contributions so that \$450 was invested in Liberty Bonds of the third issue, thus bringing the total amount of the Fund to over \$5000. The banner contribution was one of over \$82 from the home economics students of the Iowa State College at Ames who gave a play and devoted the proceeds to the Richards Fund. Local home economics associations and departments of home economics are asked to begin plans for contributions to the Fourth Liberty Loan, which it is expected will come early in the fall. The Richards Fund supports next year a gradu-

ate fellowship in the University of Chicago, worth \$500 and tuition.

The State Normal School for Women at Harrisonburg, Va., has rented a house adjoining the campus and fitted it up as a practice house for the household arts seniors. Six of them occupy the house each quarter and take turns in the various activities of housekeeping. Eighteen dollars apiece per month are allowed them for all running expenses. Mrs. Moody, of the Household Arts Department, has the supervision of this work, and her little boy affords the girls practice in child feeding.

A number of new courses were offered for the spring quarter in order to meet the request of the United States Food Administrator that as many as possible of our students be prepared for special service in food conservation during the summer. A special course in canning was given every student in the school during the daily assembly period by adding twenty minutes to the period and beginning classes earlier in the morning.

The cooking classes have been learning to make "war breads" and other dishes recommended by the government, and the sewing classes have made 150 garments for the Red Cross.

Notes. Dr. Jessica Peixotto has been made Executive Chairman of the department of Child Welfare, of the Woman's Committee, Council of National Defense. Dr. Peixotto has obtained leave of absence from the University of California, where she holds the chair of social economics.

Salem Academy and College, Winston-Salem, N. C., has this year granted the degree of B.S. to students completing the four-year college course in home economics.

A request for an exchange of postage stamps has come from Switzerland. Will any who are interested write Mlle. Siebert, rue de la Préfecture, Fribourg.

THE Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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DINNER GUESTS

At my plentiful table I had grown
Quite accustomed to dine alone.
To-day came guests to sit with me:
England, France, and Italy.

I welcomed them to my repast,
And begged they break their war-time fast.
To France I served my bread of wheat,
To England I served my roast of meat,
To Italy my toothsome sweet,
And, oh, it was good to see them eat!

We drank a health in the wine of cheer,
And I must confess—though I own it queer—
That I had not known for many a year
A heart so light and a head so clear.
And now each day they dine with me,
My comrades, friends, and allies three.

With France I share my bread of wheat,
With England I share my roast of meat,
With Italy my toothsome sweet,
And, oh, it is good to know they eat!

A savory soup and a dish of rice
I find sufficient and very nice.

MABEL KINGSLEY RICHARDSON.

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AUGUST, 1918

No. 8

MENUS OF THE ANCIENT ROMAN WORLD

CORNELIA G. HARCUM

Vassar College

At the present time, when so much thought is being devoted to the making of menus, it may be interesting at least to look back a few centuries and consider those of the ancient Romans who were truly masters in the art of dining. For the average person it may be instructive as well, for the majority of writers on the subject of Roman meals have devoted themselves almost exclusively to the exaggerated side of Roman luxury. They have concerned themselves, to a great extent, with dishes composed of singing birds, nightingales' tongues, or peacocks' brains, and draughts of liquid pearls, or with the fanciful concoctions which were served at the dinner of a Trimalchio or a Nasidienus. The result is that the modern idea of the life of the ancient Romans is all too frequently represented by the ditty which begins,

Old Lucullus, they say,
Forty cooks had each day,
And Vitellius' meals cost a million.

We must remember, however, that this represents only one side of the life of the ancient Romans; that their menus were quite as varied as our own; that the peasants in Italy, then as now, lived largely on the produce of their gardens; and that even in the days of the Empire the diet of many of the Romans was largely vegetarian. Indeed so simple was the fare of the early Romans that the substance of their meals consisted frequently of a kind of porridge called pulse which was served

in an earthen bowl. Vegetables were chopped fine and added to this mixture which preceded even bread as an article of diet. Roman authors represent Romulus as being so simple in his tastes that he preferred a dinner of vegetables, even when he had ascended into the heavens.

The following are a few of the many menus of various kinds which may be culled from the pages of Latin authors.

Shepherd's evening meal: Mellow apples, mealy chestnuts, abundance of cheese.

Slaves' banquet: Nuts, olives, beans, figs, lupine.

Farmer's daily meal: Vegetables, flitch of smoked bacon.

Farmer's meal on festal days: chicken or kid, raisins from the string, nuts, figs, wine.

Dinner served by peasants to distinguished guests: ripe and green olives, pickled cornel berries, endive, cheese, eggs cooked in warm ashes, wine, bacon and cabbage, nuts, dried figs, dates, plums, mellow apples, purple grapes.¹

An author of imperial days invites a friend to partake of a frugal meal with him and encloses the bill of fare. *Parva est cenula*, says Martial.

Menu: Lettuce, onions, salt tunny fish garnished with eggs, hot cabbage fresh from the garden, small sausages resting on snowy pulse, beans with a streak of fat and streak of lean; and a dessert consisting of raisins, Syrian pears, roasted Neapolitan chestnuts, wine.

In considering the examples of the Roman *cena* it may be interesting to note that a *cena recta*, or formal dinner, regularly consisted of three divisions: the *gustus*, *cena* proper, and the *mensae secundae*. The *gustus* corresponds to our entrée. Its purpose was to aid the digestion and whet the appetite for the more substantial parts of the meal which were to follow. *Mulsum*, a mixture of honey and wine, was drunk during this course. The second division, the *cena* proper, was very varied in its content and might be divided itself into several courses. The third division, the *mensae secundae*, corresponded to our dessert and always consisted of fresh or dried fruits, nuts, and pastry of various kinds.

Dinner served by Martial to several friends:

¹ Although the scene of the story in which this menu is given is laid in Phrygia, the menu itself is certainly representative of the food of the rustics in Italy in Ovid's day.

Gustus: Mallows, lettuce, onions, mint, fish garnished with eggs, rue, sow's udders swimming in tunny sauce.

Cena proper: kid, croquettes, beans, cabbage sprouts, chicken and ham which have already appeared three times at table.

Mensae secundae: Mellow apples, wine.

Still another menu is given by Martial for what he considers a rather desirable meal.

Gustus: Lettuce, onions, tunny fish garnished with eggs and rue, eggs cooked in warm ashes, cheese, olives from Picenum (the finest variety).

Here endeth the *gustus*, but that his friend may not be tempted to go elsewhere by a more attractive dinner, Martial says, "Do you wish to know the rest of the meal? I shall exaggerate in order to entice you."

Cena proper: Fish, oysters, *sumen* (sow's udder), fowl both wild and tame. The dessert is evidently left to the guest's imagination for Martial stops here.

There were, of course, public dinner parties as well as private. The menu which was served on one such occasion is found in Macrobius. This occasion was an inaugural banquet of a certain Lentulus as priest of Mars. Caesar and several of the Vestal virgins were among the distinguished guests. The menu is very elaborate.

Gustus: Sea urchins, blue points, as many as one desired, mussels, shell fish of other varieties, asparagus, roast chicken, oyster patties, fig-peckers, filet of kid, filet of boar, pâté de volailles grasses, snails from Baiae.

Cena proper: *Sumen* (sow's udder), head of boar, pâté de poisson, duck, roast teal, hare, roast fowl.

It seems that a part of this menu may be missing for the *cena proper* scarcely seems in proportion to the *gustus*, and the only dessert which is mentioned is two kinds of pastry.

Memorial banquets were served by the Romans in honor of their dead. One feast of this kind consisted of: Lamb, pork, white bread, salad, onions, two kinds of wine.

Nine days after the funeral *Novendiales feriae* were held. A *cena novendialis* was served at this time. The following is given by Petronius as the menu of a dinner of this kind which was served in honor of a slave: Pork, cheese cake, giblets(?), beets, whole wheat bread, cold tarts, Spanish wine and honey, peas, filberts, an apple apiece, joint of bear's flesh.

It will be noted that this menu is not given in regular order. *Gustus, cena* proper, and dessert are confused in a rather hopeless way. This confusion is due to the tipsy condition of the guest who reports that he was present.

A strange custom at certain dinner parties of Roman Imperial days, and one which is foreign to all our ideas of good taste, was the serving of a double menu. This custom originated in the degradation of what was once the mutually self respecting relationship of patron and client. At dinners of this kind the host and his distinguished guests dined on the finest of food, while the client though reclining at the same table partook of a less desirable variety. The two best examples of the double menu are found in Martial and Juvenal. In Martial the client complains, "As I am invited to dine with you why is not the same menu served to me as to you?"

Host's menu

Oysters from the Lucrine Lake
Mushrooms of the finest
Turbot
Golden turtle dove

Client's menu

Mussels of an inferior sort
Toad stools fit for a pig
Cheap fish
Maggie which died in the cage

"Why do I dine without you when I dine with you?" is the final lament of the long suffering client.

Juvenal also mentions all the indignities which a client might meet at a rich man's table, and says that he is invited for no other reason than that a seat may not remain unoccupied. He gives the following illustration of the double menu.

Host's menu

Host quaffs wine nearly two hundred years old from cup of amber or one set with precious stones
Water that has been boiled then cooled with snow is served by a slave of great price
Lobster garnished with asparagus and dressed with Venafran oil
Soft, white bread
Imported mullet

Client's menu

Cheapest of wine. If even a golden cup is used, a guard is placed over it
Water served by a slave so black that you would not wish to meet him at midnight
Shrunken crab garnished with half an egg and dressed with rancid oil.
Stale, hard, mouldy bread
Eel, kinsman of the long snake

Lamprey from the Sicilian gulf	Pike fattened in the sewer
Liver of goose	
Boar worthy of Meleager	
Finest of mushrooms	Doubtful fungi
Apples so luscious that one might feast on the odor	Rotten apples

Although the custom of serving a double menu was one which seems to have become fairly common in certain classes of society during Imperial days, it never met the approval of the better people in Rome. Suetonius records it to the credit of Julius Caesar that he was so punctilious in the management of his household that he had his baker put in irons for serving him one kind of bread and his guests another. Pliny the Younger expresses his disapproval of this form of entertainment as do other authors also.

Perhaps the best known but in many ways the least representative of Roman menus is that of the *cena Trimalchionis* which is given by Petronius. This dinner was served at the home of Trimalchio, a wealthy but vulgar freedman. It represents an exaggerated form of the luxury and bad taste of the late Empire.

It may be seen by a glance at the menus included in this brief list that Roman menus were as varied as the variety of tastes of the several hosts, the different occasions on which the meals were served, and the gradual change from a simple life to a more complex would lead one to expect. In fact they were as varied as those of our own day. Many of the foods which they ate were quite like our own, and many of their theories in regard to diet were also similar to ours. Water was boiled to free it from impurities; whole wheat bread was considered very nourishing; and condiments were condemned by Roman physicians as being unwholesome.

SOME EXPERIMENTS WITH WHEAT SUBSTITUTES

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With the decrease in the available supply of wheat it has become imperative to increase to the utmost the use of other flours. Even after the harvest wheat must still be conserved to guard against future shortage. Wheat flour has been considered indispensable because for most of our bakery goods it gives the whitest, tenderest, and largest product and because its mild flavor makes its daily use possible. While substitute flours do not give results identical with wheat, satisfactory products can in most cases be obtained.

Figures 1 and 2 illustrate the influence of increasing proportions of rice flour in a plain cake. ("Home Science Cook Book," Lincoln and Barrows, p. 199.) All ingredients by weight. *A*, all pastry flour. *B*, three-fourths pastry, one-fourth rice flour. *C*, one-half pastry, one-half rice. *D*, one-fourth pastry, three-fourths rice. *E*, all rice flour. Rice flour was selected because it is considered difficult to use a large proportion, due to the grainy texture frequently produced and to the fact that the batter does not hold the gas bubbles well.

Whenever such a series is made there is a gradual decrease in size from the all wheat to the all substitute product. (See also fig. 3.) In this case there is little difference in the appearance of the cakes as cut except that the all wheat cake (fig. 1, *A*.) shows more clearly the influence of too hot an oven in the shape of the loaf and in the characteristic muffin texture.

As the proportion of rice flour is increased, however, the cake is less elastic, more solid, and a trifle moister. One-half rice and one-half pastry flour makes a good cake, but more than one-half rice flour does not give such acceptable results. The other half of the flour need not, however, be wheat. Barley or buckwheat flours can be used, if almond or lemon flavoring is added in the case of the barley, and spice or chocolate with the buckwheat. No cake made with all substitute flours is quite like the one made with all pastry flour, but if we learn to accept a somewhat smaller and more compact loaf, we may still have a good cake using no wheat. If one-half barley or buckwheat is taken as the basis, the rest of the flour may be made up of almost any substitute flour available. The flavor of a cake made entirely of substi-

tute flour is better when the cake is entirely cold, or even on the next day. Rich cakes are difficult to make without wheat flour and had better be avoided.

If other flours than wheat are to be used, rules for substitution must be devised. The States Relations Service at Washington and the Food Administration suggest substitution by weight, that is the use of an equal weight of a substitute flour in place of wheat. The same suggestion in the case of muffins is made in an article, "Serving Meals Without Wheat" in the JOURNAL OF HOME ECONOMICS for March, 1918, page 131 (with corrections in April, page 186). On page 132 one reads, "In using other flours for wheat, an equal amount *by weight* should be used. It is perfectly easy to leave out one-fourth, or one-half, or three-fourths of the wheat flour and add in its place an equal weight of barley flour, buckwheat, rice flour, fine corn meal, or other flours." Following these directions four series of muffins were made beginning with one-fourth substitute and ending with all substitute. One set of all wheat muffins was made for comparison. The results are not uniform as one would expect if substitution by weight is the best method (see fig. 3). The all barley and all buckwheat muffins, using the recipe given in the article, were very much too stiff (fig. 3 c, *E* and 3 d, *E*.) The barley particularly was a very rough, solid muffin which was very evidently made with too much flour. Even the muffin made with one-half barley and one-half wheat begins to show plainly that too much flour has been used (fig. 3d, *C*). Apparently when barley flour and, to a somewhat smaller degree, buckwheat, are substituted weight for weight for wheat in muffins, the mixture is very much too stiff.

Figure 3 shows increasing proportions of substitute flours. Series a, rice flour; b, fine corn meal; c, buckwheat; d, barley. *A*, all wheat. *B*, three-fourths wheat, one-fourth substitute. *C*, one-half wheat, one-half substitute. *D*, one-fourth wheat, three-fourths substitute. *E*, all substitute.

Figure 4 shows the improvement made by reducing the amount of barley in an entire barley muffin. *A*, all wheat muffin. *B*, all barley muffins, same weights as in *A*. *C*, all barley, flour reduced one-fourth. *D*, all barley, same amount of flour as in *C*, large egg instead of small. *B* was made with weights identical with those used in *A*, but with barley flour instead of wheat. The rough surface gives an indication of how stiff a mixture resulted. In *C* the amount of barley flour was reduced one-fourth, by weight, giving a much improved muffin. Instead of a

hard dry muffin, a tender, moist one was obtained. Similar good results have been obtained by reducing the amount of buckwheat a little less than one-fourth. If one wishes to increase the size and thus more nearly approximate the wheat muffin, a large egg rather than a small or medium one should be used. The only difference between *C* and *D* is that in *D* the equivalent of a large egg was used. It is therefore apparent that better results may be obtained with some other rule of substitution than that of weight at least in the case of barley and buckwheat.

The same general results are obtained using all substitute flours in sponge cakes (see fig. 5). *A* is bread flour; *B*, pastry flour; *C*, fine corn meal; *D*, rice flour; *E*, barley flour; *F*, potato flour. The corn and rice sponge cakes fell a little (*C* and *D*), showing too little flour. This is more apparent where the cake has been broken to show the texture. In previous work with muffins and griddle cakes using rice flour and fine corn meal, there had been indications that a given amount of liquid required more rice flour and fine corn meal by weight than barley or buckwheat flours. The sponge cakes (fig. 5, *C*, *D*, and *E*) show this. The muffins in figure 3 show the same thing since with equal weights of all ingredients the rice and corn muffins are better than the barley and buckwheat ones. Better sponge cakes than those in figure 5 were obtained by increasing the amount of rice flour about one-sixth and decreasing the barley by the same amount. Reducing the barley as much as was found possible in the muffins (see fig. 4) caused the cake to fall slightly.

It is worth while to call attention to the potato sponge cake figure 5, *F*. In size it was equal to the one made with all pastry flour and was decidedly more tender. That is, a better sponge cake can be obtained with an equal weight of potato flour than with all pastry flour. The dry solid sponge cakes of rather strong flavor which are sometimes obtained with potato flour are due to the use of too large a quantity of the flour. In the case of potato flour for sponge cake, substitution by weight seems to be the best proportion, giving an all substitute cake which is better than the all wheat one.

The directions for substituting weight for weight have probably come about because entire substitutions have not been made with one flour, and because of differences due to milling. If the flours are mixed the differences are less apparent. A recent card from the States Relations Service makes the following suggestions:



FIG. 1



FIG. 2

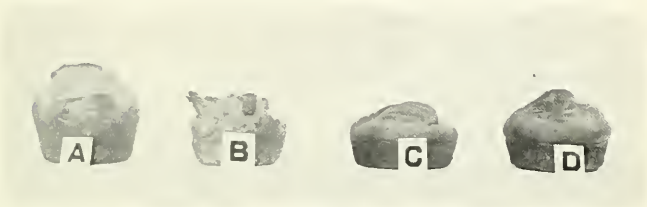
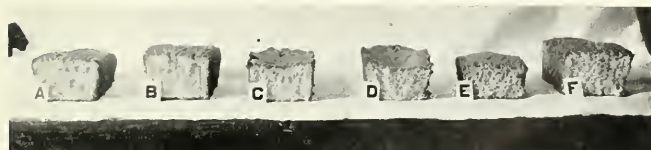


FIG. 4



5a



5b
FIG. 5



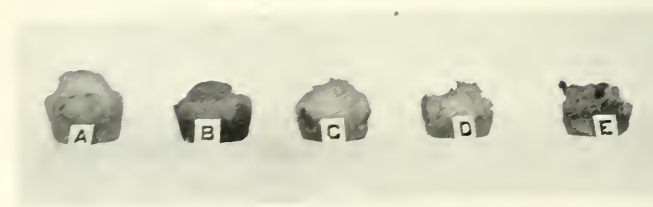
32



33



34



35

Fig. 8

Good combinations of substitutes

You will get better results if you mix two substitutes than if you use just one alone. Some good combinations are:

Rolled oats (ground)		Corn flour
or		or
Barley flour		Rice flour
or		or
Buckwheat flour	and	Potato flour
or		or
Peanut flour		Sweet potato flour
or		or
Soy-bean flour		Corn meal

It should be noticed that barley and buckwheat are not given as supplementary but as interchangeable, and that the same is true of rice flour and corn meal. In substituting according to this list the chances are very good that a combination of a substitute giving too stiff a batter (as barley or buckwheat) with one giving too thin a one (as corn meal or rice flour) would be made with satisfactory results. This list of combinations is, therefore, a very good one.

Besides the differences due to inherent differences in the flours or meals the new substitutes are a constantly varying product because of unstandardized milling conditions. The milling of high grade wheat flour has been perfected until patent flour is a fairly constant product. Even with wheat flour, however, absolutely invariable recipes are impossible with pastry, baking powder biscuit, and bread. Every one is accustomed to recipes for plain pastry with directions for adding "about $\frac{1}{2}$ cup of ice water," and to bread recipes calling for "about 3 cups of flour" for every cup of liquid. If then wheat flour, the milling of which is so nearly an exact industry, does not lend itself to inflexible recipes under all conditions, it is not to be expected that the new substitutes should be uniform and hence available for exact recipes by weight. As a matter of fact almost every lot of substitute purchased is different from its predecessors. Barley muffins with a new purchase of flour are too stiff using the weights which three weeks ago gave repeatedly good results. The article referred to in the *THE JOURNAL OF HOME ECONOMICS* suggests that fine corn flour is an acceptable substitute for wheat flour. With the last corn flour bought here it was impossible to make good muffins using half corn flour and half barley, although the corn meal obtainable gave good results. Repeated failures were also

made with sponge cake using corn flour, although both corn meal and potato flour made satisfactory cakes.

Since exact measurements or weights are impossible until more uniform products are put upon the market, one must be content with approximate directions. First, as has been said many times, results obtained with mixtures of substitutes are usually better in flavor and texture than when one alone is used. Barley and buckwheat flour if used alone should be added until the batter is of the same consistency as with wheat. Rice and corn meal batters should be somewhat thinner; in the case of muffins very thin. Combinations for muffins and plain cakes are best if the substitutes are added until the consistency approaches that of wheat. The amount necessary, while usually neither the same weight nor the same measure, approaches the former and a table of weights may be used to indicate approximately the amounts needed. With substitute flours and meals it is, however, imperative to cook with brains and judgment.

Approximate substitution values of a few flours

For one cup of wheat flour substitute about

- $1\frac{1}{8}$ cup barley
- $\frac{3}{4}$ cup buckwheat
- $1\frac{1}{6}$ cup fine corn meal
- 1 cup rice flour
- $\frac{5}{8}$ cup potato flour

Other measurements of substitute equivalent to one cup of flour (United States Department of Agriculture, States Relations Service).

- 1 scant cup peanut flour
- $1\frac{1}{2}$ cup rolled oats
- $1\frac{1}{8}$ cup rolled oats ground in meat chopper
- $\frac{7}{8}$ cup soy bean flour
- $1\frac{1}{8}$ cup sweet potato flour

THE TEACHING OF FOOD VALUES IN THE ELEMENTARY SCHOOLS

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For the purpose of determining whether or not the subject of food values and selection of food could be successfully taught to children of the intermediate grades, and of finding a method by which it might be done, a series of lessons was given to both the boys and girls of the sixth grade of the University Elementary School. The results of the experiment showed that this kind of subject matter can be taught to children of that age providing all technical information is reduced to terms comprehensible to children, and providing also that the work be vitallized by constant association with the outside interests of the pupils, as much more ground can be covered in a given length of time under the stimulus of keen interest. If these two requirements are met it should be possible to give a usable concept of food values in about thirty-four lessons. In solving the first problem, recent literature on food conservation issued by the government, in which the more difficult terms are omitted, has been of great assistance. Many of the leaflets can be put directly into the hands of the children.

The big problem of interesting the pupils in this type of information was much simplified by the patriotic attitude of the class in regard to food conservation and by the general social spirit. Although the group as a whole was from well-to-do homes, all took a keen interest in the welfare of children less fortunate than themselves. As an illustration of the former, they were greatly interested in the Food Show given under the auspices of the State Council of National Defense, January 5 to 13, 1918. The floor space of the Coliseum, where it was held, was divided among five large booths, representing the five main groups of foods, and each had a large electric sign—fats, proteins, sugars, starches, or fruits and vegetables—at its entrance. The pupils decided to have an exhibit or "Food Show" of their own. They followed the same general grouping of foods as that used at the Food Show down town, using printed placards for signs. The class was divided into two sections and an interesting contest took place to see which could arrange the better exhibit.

The social interest, to which reference has already been made, was

used in two ways. The "well-balanced meal," which they discussed in connection with their study of the five food groups, was planned for a poor Italian family which the class as a whole had become very much interested in helping. The idea of planning and cooking a meal for them was very attractive to the children; accordingly the "balanced" meal was prepared in class and sent to the adopted family in a Christmas basket just before the holidays.

The cost of foods was taken up in connection with a study of the "penny-lunches" or noon meals served to the children in some of the poorer schools of the city at a minimum cost. They had already become familiar with them, as a fund for that purpose had been started in the school, and therefore they were eager to plan some lunches. In order to do this it was important to know which foods give most for the money, and thus a reason was furnished for studying this worth while topic, which would not in itself have appealed to them. The penny-lunch also furnished the needed motive for studying which foods are most important for growing boys and girls, as the poorer children are often stunted and anaemic because of lack of proper kinds of foods as well as because of insufficient quantity. The class decided which of the lunches planned best fulfilled all of the above requirements of a good penny-lunch, and it was prepared during a laboratory period.

The group to which these lessons were given had had practically no experience in food study or in cooking. Two lessons a week were allowed to the subject, the recitation period being one half hour and the laboratory period one and one-half hours. The first ten weeks were devoted to a study of the composition of the foods themselves. The laboratory work consisted of three different types: experimental tests for composition, cooking problems, and exhibits. Tests which show familiar physical characteristics of the foods were used in preference to the chemical color tests, as it has been found that they function much better in relating similar foods and classifying them. The laboratory cooking problems were chosen to illustrate the composition of the foods, and no emphasis was laid upon principles of cooking. The exhibits were arranged by the children themselves and tested their ability to classify the different foods studied according to their composition. This method was especially useful in emphasizing the main differences between the various types of vegetables and between the fine and coarse cereal products.

The remaining seven weeks of the course were devoted to the study of food selection. The children had acquired enough information in regard to composition to enable them to group foods under the five classes—protein, fats, sugars, starches, and fruits and vegetables. The selection of foods from these groups to assure a well-balanced diet, the function of each type of food material, and the relative cost of foods within each group were the topics considered. Special emphasis was placed on the discussion of “foods for growth” such as milk, eggs, and green leaf vegetables, and the quantity and kind of protein needed for children.

The methods that were used to give as clear a concept as possible of these rather difficult problems can be illustrated by the following laboratory exercises which were used in studying protein and cost. For the former an exhibit of various foods containing equal amounts of protein was arranged. Portions containing one-half ounce, such as one pint of milk, two eggs, two ounces of cheese, were used for the sake of convenience; the children were simply told that all were equal in protein. The differences in the quality of protein found in the different foods were noted and emphasis was placed on the fact that milk and eggs were better protein foods than meat for children. In order to give some idea of the amount of protein needed during a day the number of portions required by a child was discussed by the teacher and the children then selected a day's protein allowance from their exhibit. A clear, graphic picture was obtained by arranging an exhibit showing a child's protein needs for one day.

The laboratory exercise on cost was given in order that the children might know which foods were the cheapest to use in planning their penny-lunches. The basis for comparison was the relative cost within each food group on the basis of fuel value. When they arranged their Food Show each child was given cards on which were written the names of the foods which he or she was responsible for measuring, the measure of the portion (one hundred calories was used for convenience), and the cost of those amounts. When the exhibit was ready the cheapest foods in each group could be easily told by noting the costs on the cards.

In order to test the effectiveness of the course, several different methods were employed. Some conservation pamphlets issued by the Food Administration at Washington relating to wise choice of food suggested a profitable opportunity for using the information they had gained. It was impossible to get enough copies for the whole school, so this group

took the six pamphlets and selected the points that were considered by all to be most important. This required considerable judgment and continual reference to what had been learned about foods. Out of the parts thus selected a leaflet was made and printed by members of the group in the school print shop.

At the end of the series of lessons the children gave a morning assembly exercise on Food Conservation, as a summary of their work. In their English composition class they organized the material under the following main topics: (1) Our Food Show (referring to their exhibit); (2) Which Foods are Cheapest; (3) The History of the Penny-Lunches; (4) How we planned our Penny-Lunches; (5) "Foods for Growth," (6) The Need for Conservation—(a) Shortage of food in Europe, (b) Shortage of food in America, (c) What we should save, (d) We are not saving enough; (7) How We Made Our Leaflets. Each topic was made the basis of class discussion. After all had been worked out in detail the class was divided into committees, each committee being responsible for the presentation of a large topic at the school assembly exercise. The members of a given committee held themselves responsible for the preparation of all pictures and charts needed to make the topic clear. To add interest to the program an exhibit of foods divided into the five groups was placed across the front of the stage on tables covered with white paper to give the effect of a counter. Large trade containers which could be easily recognized by the audience were used. In front of each group of foods was a poster containing the names of the foods in that group. The leaflets prepared by the class were given out at the close of the program.

To test whether or not the pupils would be at all guided in the choice of their own food by the knowledge gained, the bill-of-fare was brought in from the cafeteria and the pupils selected the lunches which they would like. In order that they might keep in mind the importance of considering food for the day rather than for any particular meal, they were asked to put down examples of the kind of breakfast and dinner they would need with the lunch chosen. Some sample menus are given:

<i>Lunch</i>	<i>Breakfast</i>	<i>Dinner</i>
Glass of milk	Orange	Tomato soup
2 rolls and butter	1 cup cocoa	Bread and butter
1 dish baked beans	2 pieces toast	1 dish spinach
1 baked apple	1 dish oatmeal	1 serving meat
		Potatoes

<i>Lunch</i>	<i>Breakfast</i>	<i>Dinner</i>
Creamed fish	1 egg	Spinach
Mashed potatoes	Toast	Steak
Rice pudding	Apple sauce	Chocolate blanc mange
	Cocoa	

Although the course could not be directly adapted to another situation, the experiment has shown that if an effort is made to connect the subject of food selection with the interests of the children it can be given real meaning for them. In the present crisis there is little doubt that one of the important features of food conservation is the dissemination of such information, in order that we may conserve without endangering our national health.

AN ECONOMY SUGAR BOWL

An economy sugar bowl made from a baking-powder can by Major E. C. Dalton and now in use on all mess tables of the Sixty-third Infantry at the Presidio, in San Francisco, has been brought with three other inventions to the Army Medical Department. The unique sugar bowl is made very simply by boring a hole, half an inch in diameter, through the rim of the lid of a baking-powder can and through the can itself. When these holes are in position, one upon the other, a steady flow of sugar to the desired amount may be had. According to Major Dalton, by the use of these sugar-bowls, the consumption of sugar has been cut down 20 per cent in seven months' use by the Sixty-Third Infantry. He said:

"Several methods were tried for saving sugar. Sweetening coffee and tea was tried but that is both wasteful and unfair to individuals who have varied tastes. The open sugar bowl is a failure. If a wet spoon is thrust into it a double amount clings to the spoon. The sugar in the bowl dampened by this process must be thrown out. The baking-powder can is the solution. The men pour the sugar from it directly into the spoon. They can see then just how much they are using."

HOME PROJECT WORK IN VOCATIONAL HOME ECONOMICS IN SECONDARY SCHOOLS¹

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GENERAL DIRECTIONS

All project work should take into consideration: the age, health, and personal qualifications of the pupils; the previous class work and experience of the pupil; the type of home training the pupil has had; the financial conditions in the home.

Each pupil should carry on project work through six months of each year, choosing the months best adapted for carrying out her particular project. The same project may be developed through more than one year. More than one project may be developed in the six months. We do not want a project to become irksome.

The work should be systematically reported and credit given to average in with other home economics units.

The home economics teacher should do all in her power to stimulate and inspire the pupils to do original work and independent thinking, and to make the projects bring worthwhile results and conclusions

PRELIMINARY STEPS TO BE TAKEN BY THE TEACHER

Become acquainted with home conditions of the pupils.

Have a general meeting and tea for all mothers of girls in the classes. If this number seems too large, better give a series of gatherings according to classes, so that the groups do not number more than ten or fifteen.

Try to have a chat with each mother at this time, or make a home visit soon after, the aim being to find out from each something of her ambitions for her daughter and the daughter's personal likes and dislikes in this specific work.

While they are together, tell them in a friendly way something of the plans being made for their girls and some of the things the work may accomplish. Solicit their coöperation, and show how much may be done if all work together.

¹ Suggestions for home project work to be given in connection with vocational courses in home economics in secondary schools in Ohio.

Approved under the Ohio plans for administering the Smith-Hughes Act.

Have a personal conference with each girl to decide what her definite project is to be. Talk over a number of possibilities and, knowing somewhat the conditions, as outlined above, try to help her choose a project which will be reasonable, interesting, and profitable.

Prepare with her a definite statement of her problems and an outline or program of procedure.

SUGGESTED PROJECTS POSSIBLE FOR THE VARIOUS YEARS OF THE COURSE

First year. Based on simple study of foods, the making of simple undergarments, and the care and repair of clothing.

Work might well include such projects as:

Canning of fruits and vegetables.

Storing of fruit and vegetables and eggs for winter use.

The preparation of beverages for all the family meals.

The preparation of some definite part of certain meals.

Preparing certain parts of the school lunch if there is a lunch room.

Making a simple baby outfit.

Hemming and marking the household linens.

Making certain undergarments and comparing with ready-made garment of same cost as to quality, durability, daintiness, etc.

Caring for the family bedding from season to season.

Test of best care for stockings.

Second year. Based on first year's work, on simple dressmaking, and more advanced food study and planning and serving of meals.

Some possible projects:

Selection, buying, and canning of fruit and vegetables.

Jelly making. (Products should be compared with same quantity of commercially prepared fruit as to flavor, cost, appearance, etc.)

Plan meals for a family and prepare one simple meal a day.

Set the table and serve the family dinner each day.

Prepare and serve one of the lighter meals each day.

Plan menus for school lunch room and plan way of serving.

Plan for and pack lunch pails at home.

Choose and buy material for a simple wash dress and make it, keeping record of amounts, cost, and time in making.

Keep own clothes well cleaned, pressed, and repaired.

Third year. Based on first and second years' work and on house planning and decorating, and more advanced dressmaking and millinery.

Chart the home kitchen and work out a scheme for efficient arrange-

ment of equipment. Suggest additional equipment needed and find cheapest adequate kinds. Buy it and install if practicable.

See how cheaply and tastefully a bed room can be renewed with home-made rugs, new paint, etc.

Make a silk or wool shirtwaist.

Trim a school hat (choose and buy shape and trimmings).

Keep a personal clothing account. (This may be help for a budget in the fourth year.)

Plan the diet for a younger brother or sister and supervise carrying out feeding according to the plan.

Plan and help in the preparations for serving the threshing hands, working out and ordering quantities of material necessary, cost, etc.

Fourth year. Based on the three previous years' teachings.

Keep a personal budget.

Keep school lunch room accounts and pay the bills.

Make a simple wool dress. Record amounts, time, and cost.

Make over a dress. Count cost and time.

Make a winter hat, count cost and time.

Make a spring hat, count cost and time.

Keep family household accounts.

Make an outline for household duties of all kinds, estimating time required, and giving proper assignments to various members of family.

TWO TYPES OF HOME PROJECTS WORKED OUT IN GREATER DETAIL (SUITABLE FOR USE IN FIRST YEAR WORK)

A. IN STUDY OF FOODS

Pupil's Outline of the Project

Statement of the project. The purpose of this work shall be to show that a meal or menu may be varied by preparing and using such familiar foods as rice, potatoes, eggs, apples, corn meal, etc., in a number of different ways.

The amount of time and skill in manipulation required in preparation of each dish will be considered, also its food value and cost in relation to the rest of the meal with which it is served.

Start with a definite weight or measure of potatoes and record any amounts added from time to time.

Each time potatoes are to be served to your family, consult the person responsible as to plans for the rest of the meal and then choose and prepare a potato dish from the following list. (Recipes furnished by the home economics teacher.)

Twenty-four ways of serving potatoes: Plain boiled (in salt water), plain steamed, plain baked, baked and stuffed, riced, mashed, creamed, escalloped, au gratin, maitre d'Hotel, potato soup, potato croquettes, potato salad, potato chowder, cottage pie, French fried, fried raw, fried (cold boiled), potato dumplings, potato cakes, potato puff, browned hash, browned whole, browned with meat roast.

After each day you serve potatoes, record:

Quantity of potatoes used.

Number of people served.

How prepared (recipe used).

Cost of whole dish.

Proportion left unserved.

How long it took to prepare ready for serving.

Whether length of time allowed for preparing was sufficient to do the work well.

Whether the way in which they were prepared seemed pleasing to most of the people served.

Any changes you could suggest in seasoning or preparation, to make them pleasing to more of the family and still use this way of serving them.

The rest of the menu, and show why you think this was a good choice of way to prepare the potatoes, taking into account the cost in time and money, food value, etc.

How much help, if any, you had in preparation today.

Summary for Whole Project

Estimate at the end of the work: The average weekly amount and cost of potatoes your family have used; the average cost of a serving.


Which method of preparation has proved most popular?

What are some ways you have found of serving potatoes besides those on the list given you?

What is the value of learning a variety of ways for preparing a food like potatoes?

B. IN STUDY OF TEXTILES AND CLOTHING

Pupil's Outline of the Project

 *Statement of the project:* The purpose of this work shall be to prove what treatment will give a pair of socks or stockings the longest usefulness.

Start with a set of three pairs of new stockings for each of three people. The stockings in each set must be of the same quality. Give each of the three sets the same treatment as outlined below.

Sew tapes into the top of each stocking and, with indelible ink, letter the sets respectively A, B, C. or a name initial. (There will be six stockings of each letter). Number the stockings of each set in pairs 1, 2, 3.

Treat each set as follows: *Pair One.* Wash before wearing the first time and rinse out the feet each night after they have been worn. Put into the general laundry at regular intervals.

Pair Two. Run darning cotton in heels before wearing the first time. Put into the general laundry at regular intervals.

Pair Three. Wear first time without washing or darning in the heels. Put into the general laundry at regular intervals.

See that the pairs are worn in regular rotation and kept mated after each washing.

When holes come, mend them all once a week until darning seems no longer a reasonable way to mend. (The teacher should help decide this point). Patch when it seems best and re-foot if possible by a pattern provided by the teacher. (This pattern may be obtained at the Home Economics Department of Ohio State University).

Keep a record of:

The number of days each pair has been worn.

The number of times each pair has gone through the general laundry.

The time spent in mending each pair.

The length of time each pair has lasted.

See if like treatment gave the same results in each set.

Summary for the Whole Project

What number were the pairs that lasted longest?

How much time had you spent mending and re-footing them?

What numbers were the pairs that lasted the shortest time?

Which of the three methods of treatment used seemed to make the stockings last longest?

Suggest all the ways you can for using stockings after they can be no longer worn on the feet.

CONSERVATION AND THE FOOD BUDGET

JEAN KRUEGER

Assistant Professor of Home Economics, University of Wisconsin

Conservation! We hear it everywhere. And just as often do we hear groans about the "high cost of living." Field workers are asking, "But how can I tell my people that they must use substitutes, when they insist that to do so means added expenditure?" With prices higher than ever before, is it more difficult for the patriotic housewife to make both ends meet than for the woman who pays no attention to the requests of the Food Administration?

In the light of this query, the food budget taken from the account book of the University of Wisconsin Home Economics Practice Cottage for the last three years, may be of interest. During the first semester of the year, the students in the household management class spend five days at the Cottage. They come in groups of three and under the supervision of an instructor buy, prepare, and serve food for four people, as well as care for the house and make time studies of the work done. Accurate accounts are kept and from them the following tables were compiled.

During 1915 and 1916 the menus were planned on the basis of 35 cents a day per person for raw food materials or \$7.00 for the groups of four for five days. In 1917 the same amount was allowed, but "meatless" and "wheatless" days and substitutes for various foods were required. It was a new problem for the girls to face and they "Hooverized" loyally throughout the course. In order that the comparison may be fair the same period of time—October through February—has been taken for each year. The work at the cottage during the second semester is of a different nature and has not been considered in this study.

DISCUSSION OF ITEMS OF BUDGET

Bread. Increase in expenditure due not only to gradual rise in price of white flour, but also, in 1917-18, to the use of barley, rice, potato, corn, and rye flours, all more expensive.

Butter. Slight decrease, in spite of gradual rise in price, due to occasional use of substitutes on the table, one butterless meal per day, and entire elimination of butter in cooking.

Cheese. Increase in expenditure due to increase in its use as a meat substitute.

Cream. Decrease in expenditure due to decrease in use.

Eggs. Decrease in expenditure due to fact that during December, January, and February eggs previously preserved in water glass by the class were used.

Flour and cereals. Increase in expenditure due to increased price as well as to the use of cereals, other than wheat, which were more expensive.

Fruit. In order to conserve sugar more simple fruit desserts were served.

Lard and substitutes. Although no lard was used in 1917-18 and much less fat, the general rise in prices makes the decrease in expenditure very slight.

Meat and fish. Decrease in expenditure due to decreased use of meat and increased use of "meat extenders" and fish. One wheatless day and one, later two, meatless days were rigidly observed.

Milk. Increased expenditure due to increased cost and use.

Sugar. Expenditure decreased in spite of increased price.

Tea and coffee. A satisfactory coffee (21 cents) was used in place of the former 35 cent to 40 cent grade. This was thought to be an easy way of reducing the budget.

Vegetables. The increased expenditure runs parallel with that of fruit and oils. The girls were urged to use fresh vegetables as long as possible and less canned goods. Dinner was always a breadless meal, and to help take the place of its bulk, a second green vegetable—often in the form of a salad was served.

Totals. The total expenditure for 1917-18 is less than either of the two preceding years. This indicates that the rather vague notion of conservation increasing the already too high cost of living may be a subject for further investigation. Conservation, as carried on in the cottage, represents very careful planning on the part of the student. She spends no more time on the actual preparation of the meal, however, than the average housewife would spend, since full University work must be continued during the week at the cottage. Knowledge of food values and how to make good food combinations are undoubtedly the basis of the reduction in the budget. Workers in War Emergency are pursuing the right course in building up the housewife's knowledge of foods and teaching combinations as well as actual substitutes and preparation of dishes.

5 Months (October-February)

ITEMS	1915-16	1916-17	1917-18
Bread, cookies, wafers.....	\$3.44	\$4.99	\$4.83
Butter and substitutes.....	12.24	12.47	10.74
Cheese.....	2.02	2.89	4.19
Condiments.....	1.10	.78	.97
Cream.....	7.11	6.44	5.43
Eggs.....	8.71	7.00	4.91
Flour and cereals.....	5.03	7.51	7.81
Fruit, dried and canned.....	7.19	3.26	3.71
Fruit, fresh.....	11.54	9.31	11.27
Lard and substitutes.....	1.92	2.60	2.11
Meat and fish.....	29.18	22.64	20.19
Milk.....	5.23	4.99	7.77
Miscellaneous foods.....	6.92	11.18	5.44
Oils (salad).....	1.60	1.50	3.10
Sugar.....	4.32	6.13	4.67
Tea and coffee.....	2.30	3.83	1.93
Vegetables, canned.....	4.55	4.08	1.49
Vegetables, fresh.....	12.51	8.38	13.30
Total.....	126.91	119.98	113.86

In connection with this budget it is necessary to know the increase in price of the various items during the three years.

Costs

ITEMS	1915-16	1916-17	1917-18
Bread per loaf.....	\$0.05	\$0.05-0.06	\$0.10-0.15
Butter, per pound.....	.29- .36	.37- .45	.49- .55
Cheese, (American) per pound.....	.25- .36	.28- .36	.36
Cream per quart.....	.36	.36- .40	.52- .60
Eggs, per dozen.....	.26- .36	.34- .48	.42- .47
Flour (white) 49 pounds.....	1.75-1.80	2.75	3.40
Rice 3 pounds.....	.25	.25	.30- .33
Lard per pound.....	.15- .16	.20	
Oleo per pound.....	.21	.25	.34
Crisco $\frac{1}{2}$ pound.....	.25- .28	.38	.45
Milk per quart.....	.07	.07- .08	.11
Oils:			
Wesson per pint.....	.30	.30	.40
Olive per quart.....	1.00		
Sugar.....	16 lbs. for \$1	12-11 lbs. for \$1	10 lbs. for \$1

Menus for five days in December

1915-16, average cost per meal per person, \$0.1276 (raw food).

FRIDAY		
<i>Breakfast</i>	<i>Lunch</i>	<i>Dinner</i>
Grape fruit	Cream of tomato soup	Swiss steak
Ralston's, cream	Wafers	Riced potatoes
Toast	Succotash	Tomato salad
	Corn muffins, butter	Prune pudding
	Baked stuffed apples	
SATURDAY		
Ralston's with dates, cream	Lima bean puree	Pork chops
Eggs à la Goldenrod	Wafers	Fried hominy
Toast	Rice and cheese en casserole	Waldorf salad, wafers
	Asparagus salad	Soft custard
	Hot rolls, jelly	Marguerites
SUNDAY		
Malaga grapes	Fricassee chicken	Fruit salad
Oatmeal, cream	Mashed potato	Nut bread, butter
Plain muffins	Bean salad	Chocolate
	Apricot sherbet	Soft custard
	Angel food cake	Angel food cake
	Cafe noir	
MONDAY		
Potato and hominy patties	Creamed chicken on toast	Pot roast
Rolls, butter	Sweet potatoes	Boiled potatoes
Orange marmalade	Nut bread, butter	Turnips
Coffee	Pea and bean salad	Head lettuce salad
		Wafers
		Pumpkin pie, cheese
		Cafe noir
TUESDAY		
Apple sauce	Chicken soup	Hash
Creamed chicken	Wafers	Scalloped potatoes
Toast	Peanut butter cakes	Rice pudding
Cocoa	Pea salad	Cream
	Apricot sauce	
	Angel food cake	

1916-17, Average cost per meal per person, \$0.119

SATURDAY

*Breakfast**Lunch**Dinner*

Pork chops, gravy
Boiled potatoes
Buttered carrots
Bread and butter
Brown betty, lemon sauce

SUNDAY

Grape fruit
Oatmeal, cream
Griddle cakes
Syrup
Coffee

Rib roast beef
Mashed potato
Buttered peas
Bread and butter
Fruit salad with wafers
Apple pie
Coffee

Nut and cheese sandwiches
Oatmeal cookies
Chocolate

MONDAY

Prunes
Corn flakes, cream
Muffins, butter
Coffee

Bean puree
Scalloped celery
Clover leaf rolls, butter
Cherries
Cookies
Tea

Beef consommé
Wafers
Roast chicken
Bread stuffing
Stuffed potatoes
Baked squash
Fruit salad, wafers
Marshmallow charlotte
Cake
Salted nuts
Xmas candies
Coffee

TUESDAY

Oranges
Oatmeal, cream
Toast
Coffee

Chicken soup, wafers
Nut cheese roast
Squash biscuit
Blanc mange
Cranberry jelly
Tea

Beef and rice casserole
Cottage cheese salad
Bread and butter
Spiced pears
Jellied prunes
Coffee

WEDNESDAY

Oranges
Corn flake, cream
Muffins, butter
Cocoa

Baked beans
Toasted cheese sandwiches
Lettuce and pimento salad
"Heavenly Hash" pudding
Tea

Grapefruit cocktail
Creamed chicken on toast
Potato patties
Charlotte russe

THURSDAY

Stewed prunes
Graham mush, hot milk
Toast, butter

Creamed hash on toast
Potato salad
Baked rice pudding
Tea

1917-18, Average cost per meal per person, \$0.115.

SUNDAY		
<i>Breakfast</i>	<i>Lunch</i>	<i>Dinner</i>
Grapefruit	Meat loaf	Toasted cheese sandwiches
Cornmeal griddle cakes	Escalloped potatoes	Oatmeal macaroons
Karo, butter	Beet and lettuce salad,	Cocoa
Coffee	mayonnaise	
	Peach cobbler	
	Coffee	
MONDAY		
Cream of rye with figs and top milk	Escalloped corn	Clear tomato soup
Barley muffins	Corn meal muffins	Pot roast of beef
Butter, honey	Butter	Browned potatoes
Coffee	Head lettuce salad	Mashed squash
	Apricot sauce	Asparagus salad,
		mayonnaise, wafers
		Fruit cup
		Honey cake, fig filling
		Coffee
TUESDAY		
Hominy grits	Cream of potato soup	Baked fish
Top milk	Bean and pea salad	Creamed carrots
Buttered toast	French dressing	Lyonnaise potatoes
Marmalade	Cornmeal parker house rolls	Orange pudding
Coffee		
WEDNESDAY		
Stewed prunes	Escalloped potatoes and cheese	Beef hash
Oatmeal with figs and raisins, top milk	Banana and nut salad	Creamed salsify
Barley drop muffins, butter	Cocoa	Relish
Coffee		Pineapple tapioca
THURSDAY		
Stewed apricots	Mexican rice	
Puffed rice, top milk	Corn meal crisps	
Buttered toast	Stewed plums	
Coffee		

"We in America are strong individualists, and we shall not lose the thought of the development of the individual in the development of the community. Is it not this spirit of mutual helpfulness that we need at present to develop? Is not this the dream of democracy, the hope of our country, and the realization of the Christian ideal?"—*Helen Kinne, From an address delivered at the Southern Education Congress, Louisville, 1914.*

HOME ECONOMICS IN THE PUBLIC SCHOOLS UNDER WAR CONDITIONS¹

ALICE A. JOHNSON

Supervisor of Domestic Science, Philadelphia Public Schools

The supervisors in the Department of Household Economy in the Philadelphia public schools appreciate fully the unusual opportunities for special activities in all of the economics of the household.

From the fifth to the eighth grades inclusive, the girls are learning the art of sewing and since "learning by doing" is our motto they are fashioning garments which are for the use of children in the war stricken countries. Because the garments are to go to those less favored than the makers, there is the greater reason for the stitches to be more carefully taken and the garments perfectly completed. This fine service for others produces in the sewing classes a spirit of helpfulness which is gratifying to the teachers of sewing and to the Supervisor, Miss Alice L. Keech.

The girls in the seventh and eighth grades in addition to their sewing lessons spend about two hours a week in cooking and other activities in the kitchen. We plan to have the Cooking Centre a "Food Informational Centre" in the community as well as a laboratory where food preparation and food values are taught to children. It is busy now in interpreting the messages sent out by the State and National Food Administrations. Mr. Hoover and his aides "Get the Facts before the People" and it is the duty of the teacher of cooking to make clear the meaning of these messages—to carry them into the homes through the children—to translate such directions so that they are unmistakable to everyone within the circle of influence.

In June and September the centres are busy preserving food for use during the school term, and at this time, special invitations are extended to the homemakers of the community to visit the cooking classes and see the methods taught the pupils. Wherever it is possible the teacher of cooking gives one or two public demonstrations in her school so that questions on the details of the work may be answered.

The United States Food Leaflets are being used as supplementary text. A set of leaflets has been procured for each pupil attending the

¹ Part of the discussion on Home Economics in the Public Schools, at the Tenth Annual Meeting of the American Home Economics Association, Atlantic City, March, 1918.

cooking classes, and a leaflet is given to each pupil, each lesson, and used as supplementary text for the lesson. The pupils prepare daily at least one recipe and when possible take home a sample of the food thus prepared, with the leaflet. Parents are urged to visit the class when other samples are being made. The leaflets on which there are no recipes are used as text for study, and a food described on a former leaflet is prepared.

The term "Conservation by Substitution" acquires new meaning when the recipes for the substitutes are prepared in the class room and used as samples at school and at home.

This winter when the Red Cross Bazaar was about to open, we were struggling with the sugar embargo—and yet, who ever heard of a Bazaar without Candy! This was our opportunity and with guidance the pupils demonstrated that sweets can be made without sugar. Splendid coöperation was obtained in most instances and always our teachers are standing directly behind the Food Administration, and their enthusiasm and earnest effort are a force among their pupils—a troop of 12,000 girls—all "Hoover Helpers."

WHY EAT FOOD?

A COLLEGE GIRL'S NONSENSE EXPLANATION

What with the war in Europe and all, it is difficult to get a dietary standard with the glutinoids and celluloids properly balanced.

A dainty jelly can be made from mountain ash berries and Le Page's Liquid Glue. The glue furnishes the necessary adhesion to make the whole mess jelly.

Doughnuts these days are traitorous unless fried in boiling water instead of *Fat Soluble A*. Put a bit of machine oil in to make them float, and then camouflage them as eatables by browning them in the oven.

A delicious bread pudding can be made of absolutely anything, and bean soup made without beans fills the aching inner man as substantially as cement.

"A family of five can live for a year on the things lying loose about the house," says Professor ———.

—*Shux*, University of Wisconsin.

FOR THE HOMEMAKER

CHANGING A PEACE TIME RATION FOR WAR TIME

CAROLINE L. HUNT

U. S. Department of Agriculture

Human machines—men, women, children—differ considerably in their choice of the fuels from which they get the power necessary for work or play. They have an advantage in this respect over the steam engine or the automobile, which must take any kind of fuel that is supplied to it—wood, coal, kerosene, or gasoline. Some human machines prefer to get more fuel from milk than from meat; others, more from meat than from milk. Some get more from cereal than from meat; others do the reverse. Some prefer fats to sweets; and others sweets to fats.

In spite of differences in the kinds of diets used, it is safe to say that the average American who is not under the pinch of poverty gets about one-sixth of all the fuel he needs from vegetables and fruits—such as potatoes, tomatoes, apples, melons, berries, prunes.

It is generally agreed that the raw materials supplied to the "census" family (father, mother, and three young children) or to a family consisting of two men and two women should supply about 12,000 heat units or calories. Some people refer to this as 120 one-hundred calorie portions. This is enough for a family in which the adults do rather hard muscular work like carpentry or housework including cleaning and washing. It makes allowance for all the unavoidable losses in cooking, serving, and digestion. It provides also for the fact that it is impossible to divide a given portion of food exactly according to the varying needs of the members of the family. One member is liable at any time, even with the best of intentions, to get more than his share, and, unless there is some margin, another would get less than needed.

If the 12,000 are provided in the following way the diet will be amply but not extravagantly supplied with vegetables and fruits: will be sweet and rich enough to taste good but will not contain more fat and sugar than desirable.

Distribution of daily calories in the average healthful peace time ration for a family

From vegetables and fruits.....	2000 calories or 20 100-calorie portions
From milk, meat, eggs, cheese, etc.....	3000 calories or 30 100-calorie portions
From bread and other cereal foods.....	3500 calories or 35 100-calorie portions
From sugar, syrup, honey, etc.....	1200 calories or 12 100-calorie portions
From butter, oil, bacon, cream, etc.....	2300 calories or 23 100-calorie portions

Now comes our country's call to save sugar; cereals, particularly wheat; meats and fats. This means use honey and syrups in place of sugar; and fish, milk, cottage cheese, etc. in place of meat. But it also carries this message to the housekeeper:

"Rearrange the calories in that peace time list so that fewer will be selected from fats, sweets, and cereals, and more from vegetables and fruits. Do not be content simply to use more vegetables and fruits but make them take the place of other foods."

In the light of this interpretation of the message, the following facts about summer dishes as they are usually prepared from vegetables and fruits are significant:

Mashed potatoes—850 calories

Potatoes, 6 medium-sized, 2 pounds.....	600 calories
Butter, 2 level tablespoonfuls, 1 oz.....	200 calories
Milk, $\frac{1}{2}$ cup, about.....	50 calories

Lettuce salad, boiled dressing—300 calories

Lettuce, 1 head, $1\frac{1}{4}$ pounds.....	100 calories
Boiled dressing, $\frac{1}{2}$ cup.....	200 calories

Lettuce salad with oil—500 calories

Lettuce 1 head, $1\frac{1}{4}$ pounds.....	100 calories
Oil 4 tablespoonfuls.....	400 calories

Creamed cauliflower—540 calories

Cauliflower, 1 medium sized.....	140 calories
White sauce, 1 cup (milk, 1 cup; flour and butter, each 2 level table- spoonfuls).....	400 calories

Glazed sweet potatoes—1930 calories

6 potatoes, medium sized.....	1380 calories
Sugar, $\frac{1}{2}$ cup.....	450 calories
Fat, 1 level tablespoonful.....	100 calories

Stewed prunes—2100 calories

Prunes, 1 pound.....	1200 calories
Sugar, 1 cup.....	900 calories

Baked apples—1000 calories

Apples, 6 medium sized.....	550 calories
Sugar, $\frac{1}{2}$ cup.....	450 calories

Strawberries, cream and sugar—875 calories

Berries, 1 quart.....	175 calories
Cream, $\frac{1}{2}$ pint.....	400 calories
Sugar, 6 level tablespoonfuls.....	300 calories

Escalloped Tomatoes—750 calories

Tomatoes, 1 can or 2 pounds fresh.....	200 calories
Sugar, 1 level tablespoonfuls.....	50 calories
Fat, 2 level tablespoonfuls.....	200 calories
Bread crumbs, 2 cupfuls.....	300 calories

There is no objection to any of these dishes, but the object in substituting will be accomplished better by serving some at least of the vegetables and fruits in ways that call for "no fat and sugar."

Some vegetables and a few fruits can be eaten with salt alone. These include radishes, celery, and tomatoes. Cucumbers can be cut into strips and eaten like celery. Melons can be eaten with nothing added or with salt. Many fruits commonly eaten with sugar from force of habit are found far more refreshing without it. Prunes cooked without sugar or simply soaked are a good substitute for fresh fruit if served with lemon juice or with lemon juice and salt.

All fruits contain sugar, but when fresh this sugar is dissolved in a considerable amount of water. It is only after the water is dried out of them that they seem sweet. The lesson from this fact is that if fruits are to take the place of sweets fresh ones must be cooked down as far as possible and dried ones must be made palatable without the addition of much water.

Raisins dipped into boiling water and then put into a closely covered dish to steam make a good sweet to eat with the breakfast cereal. Dried pears are said to be a delicious sweet particularly if they are dipped in salt water before being dried.

If apples are baked in a covered dish without sugar until their skins are soft, they can then be cooked down till they seem sweet. This is especially true of some varieties. To save room the apples may be cut into quarters.

The sugary vegetables can be cooked down in much the same way. Carrots and parsnips may be boiled in water to which a little fat has been added till they are soft and all the added water is expelled. Sweet potatoes break up too easily for this method but can be cooked in a baking dish with water and a little fat.

The amount of food or fuel obtained from the vegetable and fruit supply will depend largely on the amount of waste. Potatoes that are to be boiled or baked may be blanched in much the same way as tomatoes by putting them in a frying basket and dipping them into boiling water for two or three minutes. The skin can then be removed with little waste.

The calories which a family is willing to take from vegetables will depend partly on the variety of ways in which they are served. Potato salads, chowders, and creamed potatoes, for example, can all be varied almost endlessly by the flavorings used. The potatoes may be combined with beets, cucumbers, carrots, peas, tomatoes, beans, onions, pimientoes, green peppers. Others may be varied by the method of cooking.

For a war time ration use vegetables and fruits abundantly. Choose ways of preparing and serving which require the addition of little or nothing that has any fuel value and that reduce their bulk by driving off their water.

POINTS IN SELECTING MEALS¹

FLORA ROSE

Cornell University

I. YOU NEED THREE THINGS FROM YOUR DAILY MEALS.

1. You need fuel.

Your body must be kept warm and it must have energy for its work.

The more work your body does the more fuel you must feed it.

If you do not eat enough fuel food to keep your body warm and to do its work, your body will burn some of its own tissues as fuel and you will grow thin.

If you eat too much fuel food you may grow fat or you may clog the machinery of your body and injure it.

2. You need building material.

¹ The first of a series of lessons now in preparation. To be published by The Macmillan Company.

You must supply all parts of your body, muscles, bones, nerves, blood, and the rest with those materials which they must have if they are to grow or to be kept in repair.

If day after day you fail to eat enough of any material needed by the body for growth or repair your body will become worn out and damaged.

3. *You need body regulating substances.*

Your body works well only when your daily food contains various materials whose business it is to keep the machinery of your body running smoothly.

Without these regulators your body could not burn its fuel normally. It could not set its building materials in place. It could not eliminate its wastes. It would cease to grow. Friction would occur. The machinery of your body would be damaged and the engine would stop.

II. EACH FOOD YOU INCLUDE IN YOUR MEALS SHOULD BE THERE FOR ONE OF THE FOLLOWING THREE REASONS:

1. Because it is a good fuel food and you need the energy its fuel can give.

2. Because it contains building material which your body needs.

3. Because it can supply some body-regulating substance that you must have to make the machinery of your body run smoothly.

III. YOU NEED TO KNOW THREE THINGS ABOUT THE FOOD YOU EAT:

1. Which substances in foods give them their fuel value and which foods are the best ones for you to select as fuel foods.

2. Which substances are needed to build your tissues, and which foods are the best ones to select for each building material.

3. Which foods will give you the body-regulating substances that you need in a form which you can use to best advantage.

Group I Fuel Foods.

a. Most of your day's energy should be supplied by foods rich in starch.

Breakfast foods (oatmeal, cornmeal, barley, wheat foods); bread of, various kinds; dried peas, beans, and lentils; vegetables rich in starch as potatoes.

b. Some of your day's energy should be supplied by foods rich in fat.

Milk	Eggs	Meat fats of various kinds
Cream	Fat meat	Oils or foods rich in oil.
Butter	Bacon	

c. Your day's meals are more palatable if some of your energy is supplied by foods rich in sugar. Sugar is not necessary. Avoid too much.

Sweet fruits and vegetables.	Molasses	Sugar
Honey	Syrups	Desserts and candy

Group II. Building Foods.

There are four conspicuous building materials which you must consider in selecting your food. You need some of each, each day.

a. Protein.

Some of your day's protein should be supplied by one of these animal foods. One will replace another.

Milk	Eggs	Cheese	Meat
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Most of the remainder may be supplied by these foods.

Breakfast foods (oatmeal, wheat, cornmeal, barley, rye, buckwheat, etc.); breads of various kinds; dried peas, beans, and lentils; nuts.

b. Lime.

Lime is necessary. Many dietaries are low in lime.

The most valuable lime foods are:

Milk	{	Milk contains more lime than a saturated	Cheese
		lime solution.	Eggs
		It is the cheapest lime food.	

Next in lime value are:

Leaves and stems of plants, as: spinach, celery, lettuce, cabbage, onions, swiss chard.

c. Iron.

Many dietaries are low in iron. Foods best to supply you with iron are: Green vegetables (our most valuable source); fruits and vegetables as a whole; breakfast foods and breads made from the whole grain (our cheapest source); eggs (excellent but expensive); meat (rich in iron but the value of its iron is questioned).

d. Phosphorus.

Foods best to supply your phosphorus are: milk; eggs; meat; breakfast foods and breads made from the whole grain; dried peas, beans, and lentils.

Group III. Body regulating foods.

You must select regulating foods from each of these groups:

a. Laxative foods: fruits and vegetables; breakfast foods and breads made from the whole grain.

b. Foods containing salts, acids, or flavors needed by you: fruits and vegetables.

c. Foods containing two unknown factors both of which you must have if you wish to grow or retain your health.

1. The first unknown factor essential for growth and health is found in amounts sufficient for your needs in milk, butter, cream, eggs, meat (if you eat enough of it), cod liver oil.

The following foods contain it in amounts which will help but they are too bulky to enable you to eat enough for your needs.

Leaves and stems of plants, as: spinach, swiss chard, dandelion greens, cabbage, onion, celery.

2. The second unknown factor essential for growth and health is found in amounts sufficient for your needs in milk and eggs; breakfast foods and breads made from the whole cereal grain; peas, beans, and lentils.

SALVAGING FOOD CONTAINERS

KATHERINE WICKER

U. S. Food Administration

"Just look!" and she waved me towards a table covered with an assembly of containers. There were white Dundee jars, jars from the "Purveyor to the King," screw-top candy jars, wide mouthed pickle and olive bottles, jelly glasses, seal-tight coffee and marshmallow tins, Educator tins with nicely hinged top, and even Sterno cans. All were shining clean and carried no suggestion of junk; on the contrary, the aggregation inspired a desire to store summer fruits like a provident squirrel.

This woman didn't keep house, yet a year of small entertaining, occasional spreads, and in-between nibbling in her apartment, had yielded this treasure trove of containers. She had found someone who could use them, and arranged to pass them on in good shape instead of consigning them to the junk heap.

Many a household and some stores have on hand just such useful jars, and boxes that might be used for putting up fruits and vegetables—

canned, preserved, or dried. Clean bottles can be used for bottling fruit juices and catsup.

In the face of the shortage of tin, and enormous demand for cans for commercial canning, it is true conservation to salvage these containers, which cost precious material and labor, and re-distribute them to women who can use them for storing food. America is inspired by a desire to serve, and the suggestion from a leader will start this work. The collection and distribution could be undertaken as a war activity by any organized unit in the community, such as the Council of National Defense, a missionary society or a local representative of the Federal Food Administrator.

A WHEATLESS LOAF

The following recipe developed in the experimental kitchen of the United States Department of Agriculture and the United States Food Administration is soon to be published by the Office of Home Economics on a new food card which carries directions for making a half wheat loaf, a one-fourth wheat loaf, and a wheatless loaf.

The directions for making the wheatless bread are as follows:

A LOAF OF BREAD USING NO WHEAT FLOUR

<i>All of these</i>		<i>Use</i>		<i>One of these</i>
		<i>With one of these</i>	and	
1. 1 $\frac{3}{4}$ cups liquid.		2. 3 $\frac{3}{4}$ cups barley.		3. 2 $\frac{1}{2}$ cups corn flour.
1 tablespoon corn sirup.		2 $\frac{1}{2}$ cups ground rolled		2 $\frac{1}{2}$ cups rice flour
$\frac{1}{2}$ cake yeast.		oats.		2 $\frac{1}{2}$ cups sweet potato
2 teaspoons salt.				flour.
1 whole egg.				2 $\frac{1}{2}$ cups (scant) tapioca
				flour.

Make a sponge of materials under 1 (except egg) and one-half of ingredients used from 2 and 3. Sponge should stand in warm place until very light, at least two hours. Work in balance of substitute mixture when sponge is light. Work in egg beaten slightly. Shape into loaf. Place in pan. Brush top of loaf with melted fat. Let rise to double bulk and bake in loaf pan in hot oven for one hour.

SHALL WE BUY MILK OR CREAM?

In most places a half-pint of cream (almost $\frac{1}{2}$ pound) sells for the same price as a quart (about 2 pounds) of milk. Which is more economical for the housekeeper? Which is more economical from the standpoint of national economy?

Both milk and cream vary in composition but roughly calculated the nutrients contained in them are about as follows:

In 1 quart of milk

As much protein as in 5 eggs
 $2\frac{1}{2}$ level tablespoonfuls of fat
 3 level tablespoonfuls of sugar

In $\frac{1}{2}$ pint of cream

As much protein as in 1 egg
 3 level tablespoonfuls of fat
 $\frac{1}{2}$ level tablespoonful of sugar

In putting her money into a quart of milk rather than into a half-pint of cream the housekeeper buys $\frac{1}{2}$ tablespoonful less fat; $2\frac{1}{2}$ level tablespoonfuls more sugar; as much more protein as there is in 4 eggs.

Looking at the matter from the standpoint of national economy, particularly of labor, we find that it takes more energy to deliver a quart of milk than a half-pint of cream but that the use of milk saves the labor of separating and of finding uses at the creamery for the precious food substances contained in the skim milk.

ANOTHER METHOD OF STERILIZING GLASSWARE¹

The California State new law providing for the sterilization of common drinking receptacles provokes many inquiries regarding approved methods of sterilization. Many requests, particularly, are received for information regarding a method which may be used in place of sterilizing with boiling water or steam. Following is such a method as prescribed by the State Board of Health.

"The drinking receptacles shall be placed in a wire basket and immersed completely for a period of five minutes in a solution of not less than one pound of lye or caustic soda to each $2\frac{1}{2}$ gallons of water, the lye being of standard commercial quality and containing not less than 96 per cent of sodium hydrate. When practicable, the lye solution should be used hot. All traces of the lye should be removed by thorough rinsing or washing."

Needless to state, the individual paper cup is recognized as complying with the provisions of the act.

¹ Calif. State Board of Health Mo. Bul., Vol. 13 (Feb., 1918), No. 8, p. 357.

EDITORIAL

The American Home Economics Association at its Annual Meeting at Hull House and the University of Chicago, June 27-29, reaffirmed its platform, in the following statement.

It is voted to work through the coming year, individually and collectively, in full coöperation with government agencies, to forward the following causes:

I. To establish and maintain instruction in the elements of home management, including the principles of nutrition, the proper choice and preparation of foods, thrift and economy in the use of clothing, fuel, and other household essentials, to all girls in the higher elementary grades and in the high schools, at least in the first two years.

II. Inasmuch as the administration of the household is of common interest and importance to both men and women, and the maintenance of the individual away from home also demands an understanding of these matters, to urge appropriate instruction for boys as well, as far as practicable, in matters relative to the welfare and maintenance of the individual and of the home.

III. To promote the establishment of departments of home economics in normal schools and colleges and of courses dealing with questions of public health, nutrition, and thrift, open to all students, both men and women.

IV. To coöperate in the extension of home economics instruction in the conservation of food, fuel, clothing, and other household essentials to housewives desiring such assistance.

V. To further, individually and collectively, the campaign for child welfare through the establishment of courses of instruction in child care and child welfare in schools and colleges, and through active coöperation with the Children's Bureau.

VI. To aid all community enterprises which extend the ideals of Home Economics or promote the improvement and maintenance of health.

VII. To support and maintain the *Journal of Home Economics*, as a means of extending knowledge of the subject and of promoting thought and discussion.

VIII. To promote research by encouraging and aiding investigations and research in universities, and by meetings local and national, in order that knowledge may be increased, and public opinion informed, and advancement made secure by legislative enactment.

IX. To give active support to all legislation, state and federal, which aims to secure any of the ends which we are working to promote.

X. For the above purpose, rally all the members of the national Association, to stimulate local and state associations to increased endeavor in these directions, and to ask for the coöperation of other existing volunteer agencies now engaged in related movements such as: The Federation of Women's Clubs, the Red Cross, Social Service Organizations, Public Health Nursing Associations.

The Council of the Association is hereby authorized and empowered to take appropriate measures to forward this program.

The United States Child Labor Law Unconstitutional. "If there is any matter upon which civilized countries have agreed—far more unanimously than they have with regard to intoxicants and some other matters over which this country is now emotionally aroused—it is the evil of premature and excessive child labor. It is not for this court to pronounce when prohibition is necessary to regulation, if it ever may be necessary. . . . to say that it [prohibition] is permissible as against strong drink, but not as against the product of ruined lives."

This is the language of Justice Holmes who gave the dissenting opinion in the case of *Dagenhart vs. Hammer*. Three justices concurred in his opinion. But the majority—five—held that, to quote the language of Justice Day, "The necessary effect of this Act is, by means of a prohibition against the movement in interstate commerce of ordinary commercial commodities, to regulate the hours of labor of children in factories and mines within the States, a purely state authority, and [the act] is, therefore, unconstitutional."

The court was unanimous in its recognition of the need which the Child Labor Act sought to meet, but the Act of September 1, 1916, by which Congress and the President sought to accomplish this end, they found to be unconstitutional. This Act went into effect on September 1, 1917. The age and hour standards which it laid down were not so high as the standards of a number of states. They were practically identical with a larger number; and higher than the standards of some states. The children had enjoyed the benefits of this law for nine

months when it was declared unconstitutional by the Supreme Court on June 3. During that period the value of the Act was demonstrated. It proved that coöperation between state and federal enforcing agencies was possible, and mutually advantageous; it showed that with federal backing state laws would be better enforced, and it had taken the children out of mills and mines in those states in which the standards were dangerously low.

Various plans are being suggested to meet the present emergency. Those who believe that the tradition, established by Chief Justice Marshal a century ago, that the Courts may declare laws passed by Congress and approved by the President unconstitutional, is an unnecessary extension of our check and balance system, are advocating a constitutional amendment expressly taking from the Supreme Court this power. Some want to follow the course taken when the Income Tax was declared unconstitutional. It will be remembered that eventually an amendment was passed specifically giving Congress the power to tax incomes. So now some feel that an amendment should be passed giving Congress new general powers which would enable it to directly regulate or prohibit child labor. Others, and especially those who are looking for immediate results, think that a new measure can be prepared which will meet the objections the Supreme Court found in the one just declared unconstitutional.

At this time when the young men of the country are being summoned by the nation for the defense of the nation and the world, when railroads and food and fuel are subjects of national legislation, when we are becoming accustomed to thinking and acting together as a nation, we shall surely be able to find some way of giving national protection to the children of the country.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Everyday Foods in War Time. By MARY SWARTZ ROSE, New York: The Macmillan Company, 1918, pp. 117. \$0.80. By mail of the Journal, \$0.88.

The publication of this little book, showing how to be patriotic and still live on one's income without impairment of health, is very timely. It is written in Mrs. Rose's characteristic style, giving scientific information in a simple and interesting way. It is full of material that will enable the housewife to solve the present food problems for herself.

The book is a war message with chapters on the four foods to be conserved, and has an appendix containing a group of selected war time recipes. "The Milk Pitcher in the Home," in the opening chapter, treats of the indispensable food value of milk in the diet, with many illustrations and suggestions for its use to the best advantage in the daily meals.

The teacher of domestic science will find the book valuable in connection with the practical use of all the war time substitutes, but especially in her work on relative food values. The nutritive food values of substitutes and their relative cost is strikingly shown by a series of "score" tables of the staple foods. In the closing pages on "Being Economical and Patriotic," the great necessity of feeding our people at home the most nutritious of these substitutes, while sending such food as can be exported to the men at the front, is made vivid.

Some one has said "We're learning how to save the shilling, and when the armies cease their drilling, the lesson will abide." Certainly the knowledge of food to be gained from this little book of Dr. Rose's should and will abide.

ANNA U. SHEPARD,
New York Public Schools.

Chemistry of Food and Nutrition. By HENRY C. SHERMAN, Ph.D. Second edition, rewritten and enlarged. New York: The Macmillan Co., 1918, pp. xiv + 454. \$2.00. By mail of the Journal, \$2.15.

The author of this book is well and favorably known as a teacher and investigator of the problems of nutrition. Accordingly a student of home economics may gain some conception of the value of the new edition from the reviewer's assurance that it has been rewritten in the clear and unusually logical style that characterizes Professor Sherman's publications.

Several kinds of information are especially sought at the present time by the increasing number of persons who wish to familiarize themselves with the criteria of adequate nutrition. There is a demand for a clear exposition of the essential facts which modern research, especially within the past ten years, has contributed to the chemistry of foods and the physiology of diet. Amino-acids, phosphatids, vitamins, metabolism, lipoids, antineuritic and antiscorbutic foods, dietary standards—these are some of the expressions that even the intelligent layman is becoming more eager to understand. They are interpreted in a lucid way in Sherman's volume.

Again, students of the subject are interested to learn something of the history of the newer conceptions in the science of nutrition, and to gain an appreciation of the nature and sources of the evidence upon which these views are based. The author has succeeded with unusual skill in presenting the evolution of present-day conclusions in the light of such experimental facts as have prompted them. As an illustration of topics presented with an emphasis hitherto unusual in text-books of physiology, the chapters on the rôle of inorganic nutrients, on the antineuritic,

antiscorbutic, and growth-promoting properties of foods, and on the economic use of foods may be cited. The work of American investigators has received a due share of consideration. Finally, the need of detailed information regarding the composition of foods presented for ready reference is also recognized in Professor Sherman's book which is likely to become a *vade mecum* for the professional readers of this JOURNAL.

LAFAYETTE B. MENDEL,
Yale University.

Health First. The Fine Art of Living. By

HENRY DWIGHT CHAPIN, M.D., Professor of Medicine (Pediatric Department) at the New York Postgraduate Medical School and Hospital. New York: The Century Company, 1917, pp. 221. \$1.50. By mail of the Journal, \$1.60.

The development of the Safety First movement has served to decrease the disabilities incidental to industrial life. The transference of attention to preventive measures in place of therapeutic agencies represents an advance in modern thought. Accentuating life and health instead of disease and death conduces to a more normal state of mind.

Chapin has aimed to present a book dealing with "First Aid to the Well." He applies the common knowledge of the laws of health, that should be possessed by every intelligent person, in such a manner as to point out the possibilities of applied hygiene as a means to the maintenance and conservation of health.

The author covers not merely the traditional health rules applying to the body, and most usually referred to infancy and childhood, but he considers the inter-relation of health and education as well as the moral influences which play a part in developing and fostering health and happiness. Chapters are reserved for consideration of the "Health For The Middle-Aged" and "Health For The Old."

The spirit of the book is wholesome; the style is simple, clear, and stimulating of interest and thought. The essentials of modern day methods of protecting the sound body against the attacks of deteriorating influences are expounded as part of an everyday gospel of living. The needs of life are covered "from the womb to the tomb."

The little volume merits a cordial reception in the home economics world because it is rational, sound, constructive, without being tiresome or burdened with confusing technical terms. It is a book that recognizes the limitations of the normal mind in its search for the rules of health. "Health First" is an excellent book for the laymen.

IRA S. WILE, M.D.

Our Schools in War Time and After. By Arthur D. DEAN. Boston: Ginn and Company, 918, pp. 335. \$1.25.

Teeming with enthusiastic appreciation of the patriotic service that girls and boys can render, this book is full of stimulation for those who recognize the new responsibilities of the school. Inspiring accounts of what has been done, and the pictures of possible future re-adjustments within the school, make fascinating reading that will strengthen the teacher's resolve to respond to the demands of the time in every way possible and to make that response a means of development for the child. The chapters on "Bringing the War into the Schools," "The Opportunities for Manual and Household Arts," and "Red Cross and Community Work," treat very directly of the problems of the teachers of home economics and raise interesting questions that all will meet during the period of the war and after. Mr. Dean feels that already the answer has been made in part by the introduction of live problems into the school and by the reaching out into the community from the school.

CARRIE ALBERTA LYFORD.

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NEWS FROM THE FIELD

Saving in Hotels. The release of the hotels on August 1 from their pledge to use no wheat has brought out the following results of their coöperation with the Food Administration: It is estimated that hotels, restaurants, clubs, and dining cars of the country have saved, from October 1, 1917, to August 1, 1918, between 175,000,000 and 200,000,000 pounds of wheat and its products, as well as 150,000,000 pounds of meats and 50,000,000 pounds of sugar. The educational value of their conservation efforts cannot be computed. Many people first received the food saving message while traveling on dining cars or living in hotels, and carried the news home with them.

A Course for Health Instructors will be established this fall by the Wisconsin Anti-Tuberculosis Association at Milwaukee, Wis. This course, like the new medical science will stress preventive measures. It is a direct outgrowth of war conditions in response to the call for trained workers to supplement the nurses and physicians who are being called at this time in great numbers for overseas service.

The home economics teacher, scientifically trained, experienced in teaching, already familiar with the relation of food to rules of health and their application, is especially well adapted to serve in this new field, where proper nourishment is so important a factor both in combating and in building up resistance to disease.

The course, open to normal school and college graduates, will hold its first class in September, under the supervision of Dr. E. V. Brumbaugh.

The course will include fundamental principles of health administration; social service; rural health inspection and its problems; first aid; health games and cor-

rective exercises; propaganda; elementary psychiatry; foods and food values; elementary anatomy and psychology.

The South Carolina Federation of Colored Women's Clubs has put up 20,790 quarts of canned fruits and vegetables. At the eighth annual session in Orangeburg, the Federation declared its support of the Food Administration and formed a Department of Food Conservation. The Federation will also appoint women to look after the food work among colored people of the entire state, which has been divided into seven districts, one person having charge of a district.

War Kitchen for Southern Agents. A war kitchen established in New Orleans last August has led to the equipment of several hundred home demonstration kitchens in other parts of the South. They may be found in 78 of the 87 cities where home demonstration work has been introduced, Houston, Tex., having 8 of them. Out in the counties, in the small towns and county seats, rooms in courthouses, schoolhouses, and various public buildings have been converted into food centers for the use of home demonstration agents. State agents in Arkansas and Mississippi report that there are demonstration kitchens established in more than half the counties in each of these States.

A Canadian University Course in Household Science. McGill University has established a four year course in household science leading to the degree of Bachelor of Household Science (B.H.S.). The first two years are to be spent in Montreal, the last two at Macdonald College. The work of the first and second

years will coincide with that of the corresponding years in the arts and science courses—a foundation in the sciences being prescribed. In the third and fourth years students will receive further instruction in the sciences with special reference to their household applications and will be taught the technical work of household science, at the same time continuing the study of English and economics.

Indian Squaws Organize to Study Foods. Indian women on the Indian reservation near Syracuse, N. Y., have organized a study class under the leadership of the county home demonstration agent of the United States Department of Agriculture and the State College of Agriculture. This is the outcome of a demonstration of canning and war cooking given recently by the agent at the reservation. The new organization will study foods and later on the women will receive instruction in sewing.

Farm Home Study Tours. Farm home study tours have been arranged in Yamhill County, Ore. by the home demonstration agent and the county agricultural agent to encourage better country homes, lighting, water systems, labor savers, interior arrangement, and decorations, sanitation, and conservation. The tours are made by automobile, five or six farm homes being visited each day. As many as 150 farm women and men have gone on one of these tours. Short talks are made at each stop by the agents, and the host and hostess are introduced and give briefly the method and cost of installing the particular convenience under consideration at that place.

Notes. The Trustees of Pratt Institute, Brooklyn, New York, offer for 1918-19 three scholarships to daughters and wives of army officers, in household science, household arts, and institutional work. The latter is a one year course; the others are for two years.

A transient hotel for girls arriving in Washington to do government work will be opened by the Young Women's Christian Association at North Capitol and E Streets, a few blocks from the Union Station. It will accommodate 150 girls and will be available only for short periods while a girl is becoming acquainted with her surroundings and until she can secure permanent quarters elsewhere.

Vacation Homes which will accommodate 250 girls employed by the Government in Washington were opened by the Young Women's Christian Association on July 15 at Silver Springs and the Georgetown Preparatory School. The houses are especially for the use of girls whose homes are too distant for them to return for vacations.

By July 1, of the many applicants who had responded to the Government's call for student nurses to enter training schools to be established in the Base Hospitals of cantonments 300 had been accepted. Miss Annie Goodrich, formerly of Simmons College is Superintendent of the Army School of Nursing.

The dining car services of the country have taken the open sugar bowl from their tables and limited service to patrons to two half-lumps or one teaspoonful of granulated sugar for every meal. This keeps safely within the two pounds per person per month ration, allowing part for preparation of food.

Montana's legislature has created a division of child welfare to be under the supervision of the State Board of Health. This is the fifth such division in the country, the others being in New York, New Jersey, Pennsylvania, and Kansas. Important powers were added to the state health board, and valuable regulations affecting the work of public health and school nurses were passed.

THE
Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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HOW YOU CAN HELP

WHAT TO SAVE AND WHAT TO USE

Three times each day every American has opportunity to be of direct, practical help to the men on the battle front.

SAVE SUGAR. Two pounds per person per month is the American honor-ration. Try to eat less and add to the National surplus for canning. Do this that the fighting forces may be kept fully supplied, and that England, France, and Italy may receive their greatly restricted requirements.

SAVE BEEF. Food for fighting men. Save the large carcasses for them by restricting yourself to small cuts, by-products and trimmings - hearts, tongues, livers. We have had enough increased supply of pork this summer to permit economical expansion in its use to relieve the pressure on beef.

SAVE WHEAT. Keep on saving, though the harvest is large. Build up our reserves by persistent conservation. Without American wheat saved from the last harvest the Allied cause would have been lost. The margin next year must not be so narrow.

USE FRUITS. Take advantage of the natural sugar in fruits. Can without sugar, or with little sugar. Add sugar later, when it will be more plentiful. Dried fruits, such as raisins, dates, and figs have much sugar in them. Use honey, maple products, and sirups when available.

USE VEGETABLES. Make local vegetables fill as large a place as possible in your diet, thus conserving not only meat and wheat, but transportation and labor. Don't use canned goods now, while the fresh are available.

USE DAIRY PRODUCTS. Always give the children plenty of milk, milk products, and eggs. Use them yourselves freely now, and thus conserve meat for export.

USE FISH. New species are being popularized and supplies increased. Eat this nutritious but perishable food several times a week and let the non-perishables go abroad.

OUR EFFORTS DURING THE FISCAL YEAR 1917-18 SENT THE ALLIES 18,844,600,000 POUNDS MORE MEAT AND FATS AND 80,900,000 BUSHELS MORE CEREALS THAN DURING 1916-17. FROM AMERICAN SOURCES OF SUPPLY 1,956,400,000 POUNDS MORE SUGAR WAS SHIPPED THAN THE PRE-WAR ANNUAL AVERAGE.

HOW MANY POUNDS WILL YOU SAVE FOR THEM IN 1918-1919?

U. S. Food Administration, August 5, 1918.

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THE WORLD'S FOOD SUPPLY AND WOMAN'S OBLIGATION¹

JANE ADDAMS

During the last three years every sympathetic man and woman in the United States has been at times horribly oppressed with the consciousness that widespread famine had once more returned to the world.

At moments there seemed to be no spot upon which to rest one's mind with a sense of well being.

One recalled Servia, where three-fourths of a million people out of the total population of three million had perished miserably of typhus and other diseases superinduced by long continued privations; Armenia, where, in spite of her heart-breaking history, famine and pestilence have never stalked so unchecked; Palestine, where the old horrors of the Siege of Jerusalem, as described by Josephus, have been revived; and perhaps the crowning horror of all, the "Way of the Cross"—so called by the Russians because it is easily traced by the continuous crosses raised over the hastily dug graves—beginning with the Galician thoroughfares, and stretching south and east for fourteen hundred miles, upon which a distracted peasantry ran breathlessly until stopped by the Caspian Sea, or crossed the Ural Mountains into Asia, only to come back again because there was no food there.

There is no doubt that many Americans experienced a great sense of relief therefore when Congress finally established a Department of Food Administration for the United States and when Mr. Hoover, who had spent two and a half years in Europe in intimate contact with the backwash of war, made his first appeal to his fellow countrymen in the name of the food shortage of the entire world, insisting that "the situa-

¹Presented at the Eleventh Annual Meeting of the American Home Economics Association, Chicago, June, 1918, and at the Fourteenth Biennial Convention, General Federation of Women's Clubs, Hot Springs, Ark., Apr., 1918.

tion is more than war, it is a problem of humanity." We were relieved to know that there was something we could actually do about it, and we received the instructions for our intelligent action and guidance with gratitude. I firmly believe that thousands of people are striving every day to carry out those instructions in a spirit of humility, and cherish the hope that their efforts may prove to be of genuine human service.

Mr. Hoover tells us that the food of the helpless Belgians has now become entirely dependent upon the exertions of the American farmer, and through the destruction of men and ships, one hundred million more men, women, and children have come to depend largely for their daily bread upon what can be sent from America—upon what the farmer may produce and what the women may save.

We may divide this hungry world into three groups:

First,—The European Neutrals, who are all suffering. In Stockholm, for instance, food has increased in cost from 200 to 300 per cent; milk and flour cards have been in force for many months.

Second,—The Central Powers, where in spite of governmental control in the distribution of supplies and the recently acquired grain fields in Roumania and Asia Minor, food riots are becoming more frequent.

The third group is the Allied Powers, those nations with whom we have entered into obligations. Today each of the European Allies is ruled by a food controller and everyone is on limited rations.

The last harvest in *France* was less than 40 per cent of her pre-war harvests and is less than one-fourth of what she needs to feed her own people. France has had the heaviest burden of wounded, sick and crippled men and in addition one-thirtieth of her population are refugees from the war zone, their homes having been destroyed and their fields devastated. This million and a half people are of necessity crowded into the houses of their fellow countrymen, and tuberculosis, always high in France,—the death rate in normal times being twice as high in Paris as in New York,—has enormously increased because of overcrowding and lack of food.

Parts of *Italy* are never able to produce enough food for all the population, even in normal times, which largely accounts for the enormous emigration every year to South America and to the United States. There has been little emigration since the war began and the shortage of food in the southern provinces is heartbreaking. In addition they are caring for the half million refugees driven southward by the Austrian drive in October, 1917, many of whom are found as far south as Sicily,

again superimposed upon the normal population. The American Red Cross officials are constantly urged by responsible Italians to send food, which they consider more important than men or munitions, as quickly as possible, from the United States.

In *Roumania*, there has been an increase of 50 per cent of population on the one-third of the land that is left to them, while at the same time the crops there have decreased 50 per cent. The suffering has been incredible; wounded soldiers in the very hospitals have died of starvation and have had their feet frozen in the hospital beds.

Although *Russia* is the land of modern famines—they occurred in 1891, 1906, and 1911, the latter affecting thirty million people—she has never experienced such loss of life as this great war has brought her. Eight million of her people have actually perished and the myriad soldiers in the Russian army, never adequately equipped with munitions, food, and clothing, have been reduced to the last extremity.

In addition Russia is suffering from a complete disorganization of her transportation facilities, so that whatever grain there may be in the south cannot possibly be shipped to Petrograd or Finland. There is something very touching in the belief revealed from time to time that if the situation could but be clearly stated in America, food would at once be sent. A Commission came last January from the Murman Railway employees. Seven thousand men, women, and children had wintered at the present termination of the railroad which was being built from Petrograd to Kola, the only open port on the Arctic Ocean. Their supplies were giving out and they could get no more, for every bit of food which reached Petrograd was requisitioned there. There was no doubt that the situation was desperate and although many Russians of Chicago donated their shoes—for which there was the greatest need all over Russia—and their money, it was impossible to secure the food and the transportation necessary for their immediate relief.

It is possible to go on multiplying these tales many times but I am sure that these or similar ones are only too deeply burned into the consciousness of most of us.

We all know that practically every nation in Europe is living on rations, and is destined to suffer privation for a long time. Our best efforts will no more than relieve them.

The question is, can we, the United States, produce enough for ourselves and enough more to make up the most bitter deficiencies?

If we ask what has been done before when there seemed to be too little food in the world, we shall find that the deficiency has always been corrected by the application of human intelligence and human labor to the soil. The one thousand acres nearest to Paris is so carefully cultivated that if the population of France should be doubled, it could still be entirely fed from its own soil if it were all thus skillfully tilled. The soil about Paris is not exceptionally good. It is said that the real French gardener first starts with a piece of asphalt, for he says he then knows what he has for a foundation upon which to make a soil to suit his purpose. He heats his soil with steam pipes and accelerates the growth of his product with electric light, and he finds it infinitely easier to grow two hundred thousand pounds of food from one acre than the same amount from ten acres.

In response to the demands made in the United States last Spring, two million back yards and vacant lot gardens were established in 1917, and the first war crop of potatoes was four hundred and fifty-two million bushels—an increase of one hundred million bushels over the previous year. Since the war began, England has placed a million and a half acreage of hitherto idle land into the production of wheat and potatoes, and three hundred thousand women of the leisure class have gone into agricultural work.

The wages of these agricultural women are four dollars a week, they are housed and fed for three dollars and seventy-five cents a week under the protection and supervision of the Woman's War Agricultural Committees.

Of the eight million women engaged in gainful occupations in the United States less than two million are in agriculture. It is estimated that at least three hundred thousand more must take the places of the two hundred and fifty thousand men already drafted from the farms as a million women are quickly taking the places of the million men drafted from various industrial occupations.

Food, above every other production in the world, responds to individual attention. It is greatly benefited by being treated in small quantities, and quickly indicates the skill of the care-taker. It is quite possible that a more intensive method of American farming would actually produce more food; that we need "integration of function," as the economists say, and that if such a change ever takes place America will make an entirely new approach to the food situation, and be much benefited thereby—another case perhaps of the results to be derived from casting bread upon the waters.

Those of us who have lived among immigrants realize that there is highly developed among them a certain reverence for food. Food is the precious stuff men live by, that which is obtained only after long and toilsome labor; it is the cherished thing which the poor have seen come into their homes little by little and often not enough, since they were children, until to waste it has come to seem sinful and irreligious.

Much may be achieved by utilizing this reverence for food, and we may also help immigrant parents and their Americanized children to work happily and usefully together in food production.

At Hull-House on last Thanksgiving Day a very charming little girl stood in the doorway of my room holding between her firm little hands a bowl containing corn meal mush which she had made from corn she had helped her Italian mother to raise in a city garden plot and later ground in a coffee mill. The delectable yellow mass was surrounded by syrup, also of their own growing, for in the same garden patch they had cultivated the sugar beets from which they had made this syrup. Apparently they had found much companionship and the use of all their faculties in these processes. Production might be enormously increased if the latent capacity in our immigrant colonies were utilized—if intelligent women not only worked themselves but organized other women to work with them. Something of this is being done in the community gardens, organized by the Chicago Woman's Club and doubtless by many other clubs, but a great extension of it is urged.

Equally important with increased production is the necessity of saving food if we would "increase our exports to our allies to a point which will enable them to feed their own people."

The women responsible for twenty-two millions of kitchens of the Nation are asked to give up certain old habits, to modify accustomed ways, to make a technical study of resources at hand and of what a family may conscientiously use. They are also urged to evoke the interest of their households and a sense of participation in a patriotic undertaking. The effort centers about three general propositions.

First, elimination of waste, which we have all learned from our mothers and grandmothers, although we too often forget to apply it. They made their own soap and candles from the 50 per cent of fat produce which is otherwise wasted in every kitchen. Fats at this moment have become very scarce and in the domain of their recovery and utilization lies one of the largest opportunities of conservation. There is also actual proof that it can be done. In certain cities after a campaign of

food conservation there has been a reduction of waste grease in the total garbage collection of 29 per cent, of other food material of 12 per cent.

Second, an actual reduction of consumption. Perhaps this can best be illustrated from sugar. The pre-war consumption in this country was the highest in the world, very close to four ounces per day per capita. Much of it took place in the little shops, multiplied so rapidly during the last few years, which are devoted to the sale of sweets and soft drinks to juveniles and young people. If we reduced the per capita consumption of sugar one ounce per diem, this alone would set free for export over one million tons of sugar per annum, and we would still be eating much more than the other nations do, sixty-five pounds per capita per year for us in contrast to nineteen pounds per capita per year in France.

Third, the substitution of foods, which cannot be readily shipped, for those which ship to the greatest advantage—corn for wheat, poultry and fish for dressed meats, and the others with which you are all so familiar.

The instruction as to the proper substitutes is one of the most important undertakings of the Department of Food Administration and also one of the most difficult. This is partly due to the fact that during the last twenty-five years women have been taught the relation of disease to improper feeding, with the happy result that rachitis and other ills due to malnutrition are disappearing among children, but because of this instruction many women have become timid in regard to making changes. It is not necessary to tell an audience such as this that there is no necessity of underfeeding any child in America or of menacing the health of any household, if only every mother and every housekeeper is made intelligent in regard to the changes required in her daily regimen.

People change their food habits very slowly; we all like best "what Mother used to make." Immigrants in America sometimes continue for years to import their accustomed foods. To make radical changes in our food habits requires a genuine incentive and a driving motive. It implies a struggle, none the less real, because it is concerned with domestic adjustments. The effort which is now being demanded from women is in a sense but part of that long struggle from the blindness of individuality to the consciousness of common ends—almost an epitome of human progress itself.

There are other things which women are doing in addition to careful administration of their kitchens. In Michigan, for instance, last spring thousands of women tested the seed corn so that the crop might not be reduced through the planting of dead corn.

In Florida the women have found that quantities of vegetables raised in that state are shipped north to be canned and back again to be eaten, so that they pay freight both ways, a practice which they intend to change and are changing rapidly at this very moment.

In Idaho and in other states where the crop of potatoes last year exceeded the local demand and where there is insufficient transportation—it is never really advantageous to ship potatoes for a long distance because they contain such a large percentage of water—the women are agitating for dehydrating plants that the potatoes may either be shipped after the water has been extracted or made into potato flour.

Food conservation may mean many things, as has recently been pointed out in a circular issued by the Department of Educational Propaganda of the Woman's Committee of the Council of National Defense; it may mean direct purchasing through the parcels post, municipal markets, coöperative delivery, as the new agricultural movement in North Dakota and elsewhere includes road making, storage, transportation, coöperative distribution, and many other things.

Women taking the places of men need not carry on the activities in exactly the old lines, they may have an opportunity to improve at least some of the methods—the distribution of milk for instance—and they are certainly under obligations to maintain labor standards. It may be easier for them than it is for men to obtain some of these results, on the same principle that it is always easier to secure legislation limiting the hours of women in industry than it is to secure the same legislation for men.

From the time we were little children we have all of us, at moments at least, cherished overwhelming desires to be of use in the great world, to play a conscious part in its progress. The difficulty has always been in attaching our vague purposes to the routine of our daily living, in making a synthesis between our ambitions to cure the ills of the world on the one hand and the need to conform to household requirements on the other.

It is a very significant part of the situation, therefore, that at this world's crisis the two have become absolutely essential to each other. A great

world purpose cannot be achieved without our participation founded upon an intelligent understanding—and upon the widest sympathy; at the same time the demand can be met only if it is attached to our domestic routine, its very success depending upon a conscious change and modification of our daily habits.

It is no slight undertaking to make this synthesis; it is probably the most compelling challenge which has been made upon woman's constructive powers for centuries. They must exert all their human affection and all their clarity of mind in order to make the great moral adjustment which the situation demands.

But what have women's clubs done for us, of what worth is the comradeship and study carried on through so many years, if they cannot serve us in a great crisis like this? Through the earlier years of the Women's Club movement there was much abstract study of history, literature, science and the arts, as if both those women who had been deprived of the stimulus which collective intellectual effort brings and those women who had sadly missed their old college companionships were equally determined to find it through the widely organized clubs. It was rather the fashion in those earlier days to make fun of this studious effort, it was called foolish and superficial and a woman was sometimes told that it would be much better for her to study the art of darning her husband's stockings and the science of cooking his meals.

Nevertheless the women kept on with a sound instinct, perhaps, for what they needed most—a common background and a mutual understanding, in short the very cultivation which has so wonderfully illumined and unified the practical affairs which they have undertaken during these later years. And because thousands of women made a sustained effort to comprehend the world in which we live it may now be possible to summon to the aid of women everywhere an understanding of woman's traditional relation to food, of her old obligation to nurture the world. We may be able to thus lift the challenge of the present moment into its historic setting.

Back of history itself are innumerable myths dealing with the Spirits of the Corn who are always feminine and are usually represented by a Corn Mother and her daughter, vaguely corresponding to the Greek Demeter—the always fostering Earth and her child Persephone—the changing seasons.

In Fraser's "Golden Bough" two large volumes are given over to the history and interpretation of these Spirits of the Corn.

He tells us that relics of the Corn Mother and the Corn Maiden are found in nearly all the harvest fields of the world, with very curious old customs. In many countries the last sheaf is bound in the shape and even put into the clothes of an old woman and is then taken to the threshing floor where everything is done to please her. She is offered all the food and drink of the harvest home supper, that there may be a full harvest next year. The Corn Mother is also found among many tribes of North American Indians and the Eastern world has its Rice Mother, for whom there are solemn ceremonies when the seed rice, believed to contain "soul stuff," is gathered. These deities are always feminine, as is perhaps natural from the association with fecundity and growth.

Closely related to these old goddesses is much of the poetry and song which have gathered about the sowing of the grain and the gathering of the harvest, and those saddest plaints of all, expressing the sorrows of famine.

The Musical Clubs doubtless know them, certainly the Irish ones, as the Graphic Arts Departments are familiar with the renaissance in beauty which came with the Barbizon School, when the artists seriously concerned themselves with the toiling peasants of France.

Perhaps those women who cared most for history and the study of early social customs will be the first to realize that these myths centering about the Corn Mother but dimly foreshadowed what careful scientific researches have later verified and developed. Students of primitive society believe that women were the first agriculturists and were for a long time the only inventors and developers of its processes. The men of the tribe did little for cultivating the soil beyond clearing the space and sometimes surrounding it by a rough protection. The woman as consistently supplied all cereals and roots eaten by the tribe as the man brought in the game and fish, and in early picture writing the short hoe became as universally emblematic of the woman as the spear did of the hunter or the shield and battle axe of the warrior. In some tribes it became a fixed belief that seeds would not grow if planted by a man, and apparently all primitive peoples were convinced that seeds would grow much better if planted by women. In Central Africa to this day a woman may obtain a divorce from her husband and return to her father's tribe, if the former fails to provide her with a garden and a hoe.

Those women who persistently kept up a study class in such stiff subjects as Comparative Religions and Philosophy, know how often

a wide spread myth has its counterpart in the world of morals. This was certainly true of the belief in the "fostering Mother." Students in the origin of social customs contend that the gradual change from the wasteful manner of nomadic life to a settled and much more economic mode of existence may be fairly attributed to these primitive agricultural women. We can easily imagine that when the hunting was poor, or when the flocks needed a new pasture, the men of the tribe would be for moving on, but the women might insist that they could not possibly go until the crops were garnered; and that if the tribe were induced to remain in the same caves or huts until after harvest the women might even timidly hope that they could use the same fields next year, and thus avert the loss of their children sure to result from the alternation of gorging when the hunt was good and of starving when it was poor. The desire to grow food for her children led to a fixed abode and a real home from which our domestic morality and customs are supposed to have originated. With such an historic background, it is perhaps not surprising that peasant women all over the world are still doing a large part of the work connected with the growing and preparation of foods. One sees them in the fields in every country of Europe; by every roadside in Palestine they are grinding at the hand mills; in Egypt they are forever carrying the water of the Nile that the growing corn may not perish. American women—even the wives of ill-paid working men and the pioneer women on remote ranches have been relieved of much of this primitive drudgery, if only through the invention of plumbing and of farm machinery.

European visitors never cease to marvel at the leisure of American women, of the very sort from whom club women are largely drawn. The American woman is not, however, relieved of her responsibilities, and it is well if she has so utilized her unprecedented leisure that at this moment in response to a great crisis she is able to extend her sympathies and to enlarge her conception of duty in such wise that the consciousness of the world's needs becomes the actual impulse of her daily activities.

A generous response to this situation may afford an opportunity to lay over again the foundations for a wider morality, as woman's concern for feeding her children made the beginning of an orderly domestic life. We are told that when the crops of grain and roots so painstakingly produced by primitive women began to have a commercial value their production and exchange was taken over by men, as they later

took over the manufacturing of pottery and other of woman's early industries. Such a history, of course, but illustrates that the present situation may be woman's opportunity if only because foods at this moment are no longer being regarded from their money-making value but from the point of view of their human use.

In these dark years, so destructive of the old codes, the nations, forced back to their tribal function of producing and conserving food, are developing a new concern for the feeding of their peoples. All food supplies have long been collected and distributed through the utilization of the commercial motive. When it was commercially valuable to a man, to a firm, or a nation, food was shipped; when it was not commercially valuable, food was withheld or even destroyed. At the present moment, however, just as the British government has undertaken the responsibility of providing the British Isles with imported food, so other belligerent and neutral nations have been obliged to pursue the same course in order to avert starvation. Commercial competition has been suppressed, not in response to any theory, but because it could not be trusted to feed the feeble and helpless. There is no doubt that even after Peace is declared the results of starvation arising from the world's shortage of food, will compel these governments to continue and even extend their purchasing in other lands. But such a state of affairs will itself indicate a new order—the substitution of the social utility motive for that of commercial gain. The nations in their official relations to each other totally lack that modification which has come in their internal politics by the increasing care of the poor, the concern for the man at the bottom, which has led to all sorts of ameliorative legislation, including the protection and education of children. In international affairs the nations have still dealt almost exclusively with political and commercial affairs considered as matters of "rights," consequently they have never been humanized in their relations to each other as they have been in their internal affairs.

It is quite understandable that there was no place for woman and her possible contribution in these international relationships; they were indeed not "woman's sphere." But is it not quite possible that as women entered into city politics when clean milk and sanitary housing became matters for municipal legislation, as they have consulted state officials when the premature labor of children and the tuberculosis death rate became factors in a political campaign, so they may normally be concerned with international affairs when these are dealing with such

human and poignant matters as food for the starving and the rescue of women and children from annihilation?

There are unexpected turnings in the paths of moral evolution and it would not be without precedent if, when the producing and shipping of food was no longer a commercial enterprise but had been gradually shifted to a desire to feed the hungry, a new and powerful force in international affairs would have to be reckoned with.

The instinct to feed those with whom we have made alliances certainly bears an analogy to those first interchanges between tribe and tribe, when a shortage of food became the humble beginning of exchange. At the present moment the Allied Nations are collecting and conserving a common food supply and each nation is facing the necessity of making certain concessions to the common good that the threat of famine for all may be averted. A new internationalism is being established day by day; the making of a more reasonable world order, so cogently urged by the President of the United States, is to some extent already under way, the war itself forming its matrix. An English economist has recently pointed out that in Europe generally the war has thus far thrown the custom tariffs flat. Are they, perhaps, disappearing under this onslaught of energized pity for world wide-needs? And is a motive power, new in the relations between nations, being evolved in response to hunger and love, as the earlier domestic ethics had been? Under this new standard of measurement, preferential tariffs inevitably disappear because the nation denied the open door must suffer in its food supplies; the control of strategic waterways or interstate railroad lines by any one nation who might be tempted to consider only the interest of its own commerce becomes unthinkable.

It is possible that the more sophisticated questions of national grouping and territorial control will gradually adjust themselves if the paramount human question of food for the hungry be fearlessly and drastically treated upon an international basis. The League of Nations, destined to end wars, upon which the whole world, led by President Wilson, is fastening its hopes, may be founded not upon broken bits of international law, but upon ministrations to primitive human needs, as all the really stable political institutions in the world have been.

In this great undertaking women may bear a valiant part if they but stretch their minds to comprehend what it means in this world crisis to produce food more abundantly and to conserve it with wisdom.

THE CLOTHING SITUATION¹

MARION WELLER

University of Minnesota

The clothing factor is gaining more and more of our attention as we come to realize that we are in a war that must be won through the complete coöperation of all the people and all the industries in the country.

The recent decision of the Government to make the Commercial Economy Board of the National Council of Defense in Washington a part of the Conservation Department of the War Industries Board and further to create a Textiles Division in this department, with three sections, a wool, a cotton, and a silk section, confirms our belief that a campaign of clothing conservation work, educational in character, is needed in every state in this country to help further the work of equipping the army, and clothing the people at home.

A discussion of our clothing problems must include a survey of the wool situation and the work of the various agencies enlisted in meeting the very dangerous shortage that is threatening; a summary of the present status of cotton, linen, and silk; and an outline of work that is being done and must be done through the coöperation of school, home, and community.

Before we became involved in this great world struggle things came easily, food of all kinds was abundant, and an infinite variety of clothing was taken as a matter of course. To be sure, many of us were beginning to recognize that there were real clothing problems—problems economic, social, and ethical, and that for the good of the women of this country these problems must be solved. But it had never occurred to us that there could ever be a lack of the things we wanted, so long as we possessed the money to pay for them. Cotton was abundant and cheap; wool we must have, of course. The fact that for some fifteen years our whole production was steadily on the decline, resulting in a decrease of 25 per cent in production, gave us no alarm. There was wool enough in the world and we had our share from Australia, New Zealand, South Africa, and the Argentine.

Now we are face to face with the fact that we have not enough wool; that not only are the needs of an increasing population to be met, but

¹Presented at the Eleventh Annual Meeting of the American Home Economics Association, Chicago, June, 1918.

that we have an enormous army to equip, and that we must help clothe our allies as well as send them food. Further, we must rely largely upon our own resources for raw material. Shipping cannot be diverted to the bringing of a bulky product such as wool from the far ends of the earth.

Nearly two years ago men in touch with the wool situation became somewhat uneasy. The Philadelphia Wool and Textile Association, representing one of the largest textile sections in the world, took the matter up energetically and entered into a national campaign for an immediate increase in the flocks of the United States, and for the protection of sheep from dogs in the various states. A "More Sheep—More Wool" campaign was launched. The help of the Pennsylvania State College of Agriculture and the United States Department of Agriculture was enlisted and literature in the form of bulletins, folders, and posters was scattered far and wide; various lines of extension work leading to the raising of more sheep were pushed. Every farmer was urged to raise a few sheep. Boys and girls sheep clubs were formed. Ways of marketing the wool were studied; and legislation leading to the doing away with the ravages of dogs was gotten under way.

Statistics collected showed that there were less than 50 millions of sheep in the United States. There should be three times the number to supply the present demand for wool. A fully equipped soldier requires 13 times as much wool as the civilian. With the 1916 consumption of wool as a basis a little over 8 pounds of wool per year are required for the civilian, and 106 pounds are needed to equip a soldier, while in service the requirements per man are estimated to be from 125 to 190 pounds a year. This means that practically all the wool in sight is covered for government requirements. We must have 20 or more sheep back of every soldier in our army and navy, and every farmer in the country must do his share toward raising these sheep. It is asserted that six out of seven farms in the country have no sheep and that only enough wool is being raised to make one suit for each inhabitant every four years.

The latest report on the wool situation from the United States Department of Agriculture shows that the "More Sheep" campaign is bringing results. There was an increase of $1\frac{1}{2}$ million sheep in the year 1917. The campaign is spreading into many states, and all reports from wool-growers associations show a definite effort to help meet the serious shortage by increasing flocks. In our state of Minnesota farmers are being urged to utilize the cut over lands of the state for grazing; and in other states ways and means are being sought to create a paying industry.

Investigations into the causes of the very serious decline in the sheep population of our farming sections have brought to light the fact that the roaming dog is one of the main causes for the decrease. We are said to have about 25,000,000 dogs in the United States. Last year out of the three million sheep in the state of Ohio, dogs killed 25,000. The same story comes from the farming districts in all of our eastern, central, and southern states. There is very general recognition of the fact that the regulation and restriction of the dog has become a national economic proposition, and many states are passing and enforcing laws for such regulation.

The work of the Commercial Economy Board for the past year, leading toward conservation of clothing materials should also be noted. This Board issued to all manufacturers and makers of clothing and garments the following recommendations: first, that they avoid excessive multiplicity of styles, confining themselves to the number of models actually required by the trade; second, that they avoid models having needless adornments, such as belts on coats, cuffs, unnecessary pleats; third, that they use cloth in which re-worked wool and cotton are in part substituted for wool, and that they reduce the average weight of fabrics; fourth, that they make models that require the least practical amount of cloth; fifth, that they reduce the amount of cloth used for samples; sixth, that they design fewer fabrics and confine their designs as much as possible to standard construction and standard colors, doing away with novelty fabrics. They also recommended that all schools and colleges giving military training be asked to uniform their students in clothing containing 25 per cent or more of wool substitutes.

It is estimated that this simplification of clothing, with greater standardization of quality, color, weave structure, and style, will save 40 per cent in material for men's clothing, and 25 per cent for women's clothing. This calculation is, of course, made on the basis of a wool supply.

By eliminating their method of sending out samples, wholesale clothing manufacturers estimated that enough wool would be saved to make uniforms for 67,000 soldiers. The ruling which cut off 6 inches from the length of the army overcoat made it possible for manufacturers in Philadelphia alone to save enough cloth for 31,250 army overcoats on contracts for 750,000 coats. A later ruling reducing the length 10 inches instead of 6 inches is allowing a still greater saving.

The government has not yet determined what quantities of wool are held by manufacturers nor the extent of the 1918 clip. Demands have

been made by the War Industries Board for information as to the quantity of wool in the possession of manufacturers and of dealers, but until replies have been received and tabulated it will not be possible for the government even to estimate how much wool will be available for filling civilian orders. It is stated by those who are closest in touch with the situation that an army of 5,000,000 would mean absolutely no wool left in this country next year for civilian purposes.

The recent action of the War Industries Board in fixing a price on raw wool, and in establishing control over its distribution through a wool section of its Textile Division is perhaps the most important step taken by the government in attempting to meet the wool clothing situation. The appointment of John W. Scott, of Carson, Pirie, Scott, and Company of Chicago as chief of the Textile Division and Textile Administrator for the country is looked upon as the most important announcement made in connection with the textile industry.

Whether or not standardization of cloth and clothing for men will be carried to the same extent to which it has been carried in England remains to be seen. At present there has not appeared a definite demand for it; yet an announcement from the War Industries Board some weeks ago to the effect that "Liberty suits" are to be manufactured to a standard of cloth and style for the civilian population is an indication of the seriousness with which the authorities are considering the matter of our wool conservation.

It is interesting to note that in the report on British Standard Cloths for civilian wear, the price of a man's suit is fixed at \$13.99; a boy's suit at \$12.77; and an overcoat at \$15.33. It is further stated that negotiations are under way for standard blankets and standard hosiery.

King George, after inspecting recently several factories in central England engaged in making cloth for the new standard suits for British civilians, is reported to have broken his resolution not to have any more new clothes during the war and selected a length of brown standard cloth to be made into a \$13.00 suit.

The cotton situation has come to be serious for us because of the exorbitant prices that are being reached in cotton goods. There is no shortage of the raw material. The prospects are good for a record crop this year. The enormous quantities used for army equipment; the increased wages in mills; and the forced substitution of cotton for wool and linen in fabrics and for many household purposes have created an unusual demand. The War Industries Board has now taken the position that the

cost of cotton goods is rising to an extent not warranted by existing conditions and has recommended that something be done to stabilize the cost of cotton goods.

As a result of this, a joint committee representing the board and the cotton goods trade was appointed to study the cotton situation.

On June 8 a tentative price for cotton goods was agreed upon, and it was further agreed that some basis of price fixing on cotton goods would be established in the very near future. The Board's action does not extend to the price of raw cotton. All calculations are based on the prevailing price at the present time, namely, 30 cents per pound.

The consumption of cotton in the United States in 1917 was 35 pounds per capita against $10\frac{5}{8}$ pounds in Great Britain. How much methods of laundering have to do with this greater consumption, is not known. It is doubtless true that the difference in standard of living is a factor. But the addiction of the American woman to seasonal styles undoubtedly accounts for a tremendous waste. Cotton enters into the vast majority of articles of women's wear. The constant efforts of the caterers to women's needs in garments has been to provide innumerable novelties. The existing high prices are now making us realize our responsibility.

Very little can be said of linen. Shipments into this country are so small as to be negligible, and we have never produced the raw fiber. The larger part of the raw material for both Great Britain and the United States was exported from the part of Russia that is within the war-ridden area; Belgium's flax industry is destroyed.

In the Irish plants the production of linens for commercial purposes is not permitted and whatever is raised in Great Britain now is commandeered by the government for airplane sails and other war purposes. Should the tests now being made on American aeroplanes to construct the wings of rolled steel one one-hundredth of an inch thick prove successful, the pressing need of linen or substitutes therefor may be relieved and linen fabrics may be diverted to civilian purposes.

We still have a considerable quantity of linen stocks in the stores and warehouses, but when these stocks are sold out it is believed that it will be years before linen fabrics even approaching them in quality will be produced; perhaps never.

Silk needs very little comment. The demand for it was never greater, and there is an abundance. Manufacturers are substituting it for wool, and it has become our patriotic duty to use silk in place of wool wherever possible.

So far comparatively small amounts of silk are required for war purposes, but there are indications that very large amounts may be required in the near future. If this need does develop, the silk situation may materially change.

A short time ago there was held in The Great Central Palace in New York City a great textile exhibition. One of the most interesting of the exhibits was the showing of the materials and processes involved in the production of remanufactured wool, or shoddy. The term "shoddy" has come to have a prejudiced meaning in the mind of the public that is unfounded and unjust, under the modern methods of manufacturing.

One of the most important steps taken toward helping to meet our serious wool shortage is the encouragement that is being given to the use of reworked wool as a substitute for wool in fabrics for civilian use. Before we became involved in the war, we were actually sending to Europe tons of rags to be re-worked over there and sent back to us. We now see the wastefulness of this procedure. The quality of goods does not necessarily depend upon whether re-worked wool is or is not used, but does depend upon the quality of the re-worked wool. The re-manufactured wool of good grade is known to have better wearing quality than poor grades of virgin wool. In some governments contracts for army equipment specifications are now allowing a certain per cent of shoddy. For illustration, army blankets that are being made in our woolen mills in Minneapolis contain 35 per cent of shoddy.

One of the much needed lines of work at this time is a campaign among the women in the smaller towns and rural districts as well as in the cities for clothing conservation. Women should be taught the facts regarding the wool shortage, and the possibilities of enormously adding to our resources through the utilization of much material that has heretofore gone to waste. The necessity for saving rags instead of burning them should be taught, and organized salvage work should be encouraged. Some states are doing this work successfully through their extension workers. In Minnesota some work is done through the Extension Service, and the Woman's Committee of the State Council of Defense has organized a definite clothing conservation campaign. We have scattered "Save-the-Wool" leaflets, put posters into libraries, and used the extension bulletins through the county organizations. Work of a similar character is being done in other states.

In the city of Boston the Women's City Club has organized a "Food Facts Bureau" and this bureau has created a "Clothing Facts" section.

The state has put up a hut on Boston Common to be used as a place for exhibits of food, clothing, and gardening. In order to inform the public of the various phases of the clothing problem, there are files showing class work in sewing throughout the United States as it touches clothing conservation, and Red Cross work; bulletin boards for clippings; slogans and posters and exhibits. Exhibits of varieties of wool, domestic and foreign; of cloth in process of making; of the various wool substitutes; of cotton in wool cloth, overalls and service clothing; clothing of the Junior League during war times; correct shoes, etc., have been put up, and many hundreds of people see these exhibits daily.

Many of our colleges and schools where courses in sewing are given have organized work in remodeling problems, and are urging the introduction of this type of problem in high school classes. Women are being urged to bring out from their attics and store-rooms everything in the way of clothing and put it into use, either at home or through the relief organizations. Pattern publishers are advertising designs especially adapted to the use of the smallest practical amount of cloth, and to the remodeling of old garments. Suggestions are being sent out from the Home Economics Division of the Bureau of Education urging the introduction of remodeling projects into sewing classes, thus helping to teach lessons of thrift and economy to our girls in school.

We are all perfectly aware of the fact that no one thing has been a greater source of waste in clothing than the forced laying aside of perfectly good garments because of the rapidly changing styles. It has meant not only waste of raw material but waste of time and energy on the part of thousands of women.

The present situation in the textile world is not only making women begin to realize the desirability of adopting more conservative styles but there are indications that the manufacturers are beginning to see that it would mean a sounder basis for business.

A meeting of the National Cloak, Suit, and Skirt Manufacturers Association was held in Cleveland the last of May. At this meeting the style committee presented a letter from Washington requesting the garment makers to reduce the number of models in their line. Following the discussion of this request, an address to the Association by one of their members contained these significant statements.

"Every man who studies the women of his own family knows that a really lovely garment—one that has inherent beauty—is worn again and again, actually worn out in fact, and then in many cases repaired and

worn some more. The woman will really like it, and what she likes in clothes she will keep going back to.

"On the other hand, the garment she bought for some absurd freakish style will be worn two or three times and cast aside. She thought it was the "newest thing" and she wanted to be up-to-date, but in real truth her natural taste was offended, and she didn't 'like it,' so she merely wore the novelty off. The cloth and work in such a garment are practically a dead loss to the woman and to the country.

"We are striving for the artistic and for the lovely and such work is in the truest sense 'conservation' work. Also when we develop something successfully artistic, something that stands the test of the women's criticism we are not afraid to stick to it, and we don't throw the idea away, because it isn't absolutely new."

The convention went on record as accepting and being willing to incorporate these factors in conservation: first, sound tailoring; second, strict simplicity of design—not too many interrupted lines, and a chaste restraint in the matter of ornament.

So we see turned upon American women what was once regarded as the "insidious" propaganda of fashion for the patriotic purpose of making them wear their clothes until they are genuinely worn out, and at the last discard the remaining fragments with a sigh of regret.

The facts presented above relative to the clothing situation are only suggestive of some of the problems coming into the field of our textiles and clothing work. Many of the problems are emergency ones. Many of them are going to stay. Whatever may be their character we recognize that their solution is vital in the greater conservation program.

THE FRIENDS OF CAPTAIN SUGAR

EMILY ROSE BURT

Division of Home Conservation, United States Food Administration

Captain Sugar of the American Food Army was suddenly called to service overseas. Most of his family were prisoners of the enemy in Germany and Austria and couldn't get out to help in the world war, and he was more than eager to do for he knew how badly he was needed abroad by the Allies and the people in the war countries.

But all the same he did worry a bit about the way things would go in America in his absence. You see, in civil life before the war he'd been in the "Sweets" business. His chief line was candy, with cake and pudding branches. "Whatever," said he to his commanding officer, "will the folks do without me? They depend on me so. I'm a family pet."

"You are," was the reply, "but your duty is plain. You must go to the aid of the Allies. Meanwhile we must try to find substitutes to carry on your business. We'll look out for such as aren't so well fitted for overseas service and they can do their bit at home. So, Captain Sugar, you're not to worry."

"I shan't worry," said Captain Sugar, "but I have a personal business, and I fear folks won't want to give their confidence to strangers."

"Leave it to me," replied his chief, reassuringly.

"Well—since you're so sure, just as a favor, save a little corner for me when I come home again," joked Captain Sugar.

So he sailed across the sea and his commanding officer, who had had his wits working busily, set about rounding up helpers to carry on Captain Sugar's business. One of the first chaps he thought of was Mr. Corn.

"Seems as if the ones that are doing the most already are always the first ones asked to do something extra," said Mr. Corn with a cheerful grin reaching from ear to ear. "I've been doing a lot of Colonel Wheat's work since he's been in the service. However you may count on me. Certainly it's up to me to be patriotic, for I'm an American to my very roots." "And what's the special stunt I'm to do?"

"Your job," said his chief, "will be to form the Corn Sirup Association and take charge of a portion of the Cake Frosting business, with the Pudding Sweetening branch."

"Good," said Mr. Corn, "I'll enjoy that. Maybe I can even put one over on Captain Sugar," and he winked knowingly.

"There's a firm up in Vermont ought to help me out," said the General to himself after his successful interview with Mr. Corn. "I'll just wire the Maple Brothers. Wouldn't wonder if they knew enough about the sweetening business already to be valuable." "To Maple Brothers, Sugar Hill, Vermont. Can you lend your services in the 'Sweets' business for duration of war? General Food Resources," he telegraphed.

The answer came back at once: "To General Food Resources, Washington. Glad to help out in 'Sweets' business. Entire resources of Maple Sirup and Sugar Association at your command. Maple Bros."

It seemed a good idea to let the Maple Brothers and Mr. Corn join forces to a certain extent in the Cake Frosting and Pudding Sweetening

branches, as they had already been acquaintances in the Pancake Club and knew something about the same line of work.

With Mr. Corn and the Maple Brothers enlisted in war work, the General felt that a good beginning had been made, but he knew that he must widen his corps of workers, so by postplane he communicated with the Busy Bee Company. They enthusiastically agreed to give the services of Miss Honey, their most efficient employee.

"You'll find Miss Honey a great help in the 'Sweets' business," they wrote from Cloverfield, Ohio, "she's an expert."

The General immediately planned to make her an assistant in the Dessert Department.

"I need a good head for that department. I believe I can get Miss Molassas to fill the place; as she's a relative of Captain Sugar, she ought to be interested."

Sure enough, she was proud to come up from the South and take the job. She was full of splendid ideas about gingerbread and Indian pudding and Brown Betty, and made some good suggestions which were used in the Candy Department. Miss Molasses's Scotch kisses were divine, so everybody said, and she and Peter Popcorn came to some kind of an understanding which was looked on kindly by the General and was immensely enjoyed by the children.

Of course everybody coöperated in the Candy Department, Mr. Corn through his Sirup Association, Maple Brothers through their Sirup and Sugar Association, and Miss Honey in countless ingenious ways of her own.

But still more aid was needed, so the General called for volunteers. Then came forward Mr. Prune, Mr. Date, Mr. Fig, Mr. Nut and all his family, the pretty Fruit girls, and even old lady Ginger, "Grandmother Ginger," the rest called her. Madame Chocolate was director, and Mr. Nut made himself useful everywhere. He and Mr. Prune, Mr. Date and Mr. Fig often got together for the benefit of the business.

So well did these candy volunteers succeed that the keepers of all the candy shops begged them to take front seats in show windows, and little girls and boys going by would pull at their mothers' sleeves and say, "Please buy us some stuffed dates or peanut balls." And every young lady shopper with a sweet tooth would run into the candy shop and buy nut and fig caramels, stuffed prunes, or chocolate almonds.

"Getting along without you finely," cabled General Food Resources to Captain Sugar, "so stick on over there till the last gun is fired."

And that's what Captain Sugar is doing!

THE FOOD ADMINISTRATION CAFETERIA

CLAUDIA FITZGERALD

United States Food Administration

One sitting at luncheon in the present Food Administration Cafeteria, and watching its operation would little guess that less than a year ago it began literally in a basket.

Soon after the Food Administration came into existence an enterprising woman saw her opportunity and began to go about daily to each room carrying in a basket sandwiches, cakes, and fruit and serving them to the rapidly growing number of Food Administration employees. When this proved insufficient, a small room, with a table across the door serving as a counter, was the first lunch room which the Food Administration could boast. In these limited quarters, this same enterprising woman sold soup, sandwiches, one hot dish, cakes, coffee, and fruit. The food had to be eaten in one's office as there was no seating space in the lunch room. All this was while the Food Administration was located in the Gordon Hotel.

When the spacious new building on 18th and D Streets was completed a room was fitted up on the first floor for a cafeteria. A counter shut off one end of this room. On this were displayed pies, cakes, and sandwiches. Behind it the manager and her assistants, with very limited cooking facilities, consisting mainly of an electric stove and coffee urn, served a constantly increasing line of people. The larger part of the room was equipped with several tables and chairs and a shelf running around the walls. The room was small and so overcrowded, that still a majority of those patronizing it carried their luncheon away to eat.

Up to this time the lunch room was under private management. Realizing that something must be done, and that under the proper supervision better service could be given, the Food Administration asked the University of Illinois to lend them for several weeks the services of Miss Parsons, the manager of its cafeteria. Working with the Chief of the Home Conservation Division she entirely reorganized the Cafeteria, installing adequate equipment and placing in charge a woman trained in institution management, giving her capable assistants and help. Then the Cafeteria began in earnest. A larger room was selected; a kitchen was built; an ample counter constructed; a steam table, electric stove, electric ovens, hot and cold water, and an ice box were installed.

Attractive dishes, silver, and utensils were purchased, dainty curtains were hung at the windows, and tables and chairs secured. The Cafeteria was ready for operation soon after the first of the year.

Adjacent to the big dining room and the kitchen, Mr. Hoover has a small dining room, seating a dozen people, where he may discuss Food Administration business with his aids through the luncheon hour.

From the days of the "basket lunch" sandwiches formed an important item in the menu. The numerous office boys, and others who needed an inexpensive lunch were particularly dependent upon these. For some months Victory Bread was used. Then the need for wheat became urgent. Mr. Hoover, realizing this need and our obligations to the Allies, asked hotels and restaurants, and individuals who could do so to refrain from using all wheat products until the next harvest. The Cafeteria immediately complied with the request. Then the problem had to be met of a substitute for the sandwiches for those whose lunches must be inexpensive. Potatoes and wheatless quick breads and at least one hearty dish containing no wheat or meat helped to make the transition an easy one.

The Cafeteria is now serving between six and seven hundred persons at luncheon every day and with little inconvenience. A strictly wheatless menu is given. Much cheese is used. Potatoes are a part of every day's lunch. Milk and buttermilk are served. The Cafeteria rigidly adheres to the Food Administration rulings and changes in policies.

These are some of the dishes found frequently in the menu.

I. Soups: Corn Chowder, Vegetable Soup, Turkish Soup, Creole Soup, Potato Soup.

II. Main dishes: Potatoes au Gratin, Pinto Bean Loaf with Tomato Sauce, Spinach with Egg, Minute Rabbit, Baked Shad or Trout with Egg Sauce, Escalloped Tomatoes, Escalloped Corn.

III. Salads: Cottage Cheese, Pineapple and Nut, Stuffed Egg, Potato and Celery, Fruit, Banana, Celery and Cabbage.

IV. Desserts: Ice Cream, Chocolate Tapioca, Maple-Nut Pudding with Whipped Cream, Pineapple "Pershing" (Bavarian) Cream, Fresh Strawberries, Apple Pie (Wheatless Crust).

V. Beverages: Buttermilk, Sweet Milk, Coffee, Tea.

VI. Fruit: Apples, Bananas, Oranges.

VII. Extras: Orange Marmalade, Peaches, Pears, Strawberry Jam (Individual), Cheese, Spiced Pickles, Conservation Candy, Salted Peanuts.

Note. Since the foregoing article was written the cafeteria has again outgrown its bounds. Partitions have been removed, thus increasing the seating capacity from 120 to 180.

In order that experimental work on large quantity recipes for institutions might be carried out, two ovens were installed having a capacity of 100 loaves each. A baker was employed to provide bread for the cafeteria and to work upon recipes for institutions. Numerous small changes have been made in the method of service intended to quicken it and lessen confusion. The purchase of additional equipment has also aided in the preparation of food.

Because of the temporary construction of the building, no fuel for cooking could be used except electricity. As this was a hindrance a fireproof kitchen was constructed. This contains a large gas range, vegetable steamer, and stock pot.

Connected also with the kitchen are a dishwashing room which is equipped with an electric dishwasher, and a preparation kitchen equipped with a vegetable peeler.

Just as the cafeteria has adhered rigidly to the wheatless policy, and a sparing use of meat, so it has followed a nearly sugarless program since the need of conservation has been so great.

It has established a record of 6000 meals using only 50 pounds of sugar for all purposes during ten working days. Other sweeteners such as syrups and molasses are used almost entirely in cooking. Sugar is used principally for sweetening coffee and tea. Here the quantity served is uniform and limited—with satisfactory results and few complaints.

Thus the Food Administration Cafeteria successfully demonstrates the fact that conservation can be practiced in institutions which feed large numbers of people quite as easily as in the home.

THE RED CROSS AND THE HIGH SCHOOL SEWING COURSE

GEORGIA GRAY

Head of Sewing Department, Kansas City High School

As we drew toward the close of our first school year since the commencement of the war, we felt the necessity of taking stock in our departments to see wherein we had expressed or failed to express our somewhat inarticulate desire to be of service to our country in her time of need. Have we made a real contribution to the cause of democracy through our toil? On the other hand, have we during the past year attained the ideals of instruction toward which we have been striving in former years? Only by reviewing pre-war aims can we satisfy ourselves concerning the latter.

In all schools, the policy of a department must be one which is reasonably satisfactory from several points of view: that of the teacher, the principal, the superintendent of schools, the board of education, the community at large, and the pupils themselves. This is particularly true of the newer vocational courses. Because of the lack of general standardization throughout the country, courses in household art, domestic art, sewing, clothing, or whatever name catalogued, have been very largely influenced by what the principal or superintendent desired to have taught. To my mind, criticism from these gentlemen is apt to be conducive to a healthy condition. A teacher, always interested in the narrower and theoretical aspects of her field, can easily forget the scheme of the whole curriculum and be convinced that economics, textiles, or art may be made the mainspring of an excellent course of study. The advice of one's superior officer to the effect that it is really desired that these girls learn to sew, comes rather discordantly into this theoretical harmony. "Mere manipulation of material," which we hear decried at times, is scarcely an adjunct of a high school course, but rather its main foundation. In practice, at least, the majority of teachers of sewing in the larger city high schools of which I have any knowledge, support this conception of the requirements of the course in sewing. It must be planned with its primary emphasis on technique. Certain fundamental principles rather than garments, must be mastered in progressive order of difficulty. The study of art in its applied form of costume design, textiles such as are of direct value to the purchaser of fabrics, economics, and handwork are no mean contributors to the

sum total of valuable information which should be imparted. The emphasis placed on any of these correlated subjects will vary with individual teachers. The study of clothing is so intimate and personal that no two instructors will react in exactly the same manner.

Then, too, the type of school and community conditions must affect the general scheme of the department. Time is the limiting factor in all our planning. We must definitely sacrifice valuable subject matter in order to give time for the clear presentation of fundamentals which we consider absolutely essential. I have mentioned before that the technical emphasis is on principles, rather than garments. For example, a fitted facing may be as well taught on a skirt as a waist; a bound button-hole, on a wool dress as a voile blouse; or a French seam, on outer garments as on underwear.

And now comes the call of the American Red Cross Society. What can we do? Can high school girls' work meet their standard of acceptance? Will any of our ideals of instruction be lowered by substituting Red Cross sewing for part of that which the girls have done for their personal use? Can we hold the interest of our students?

The standard which the Red Cross Society has set for the acceptance of certain regulation garments, such as hospital bed shirts or operating robes, is necessarily high. Some supervisors feel that it is beyond that to which the average high school girl can attain. With our present day tendency to emphasize speed and effect rather than finish, I sometimes wonder if the pendulum is not swinging too far away from the well nigh perfect technique of our grandmothers. At any rate, I have felt that the placing of the hospital bed shirt near the middle of the year's course appreciably brought up the standard of workmanship among the weaker students. I believe, too, that the requirements of The Red Cross Society are as fully met by high school girls under close supervision, as by the promiscuous efforts of volunteers. The garment may need laundering, because of long handling, but this is of no importance.

Then considering the question from our own point of view, is a garment of this type satisfactory as a technical problem? Reducing a hospital bed shirt to its principles, we find that in the making of it we can teach felled seams, the putting in of sleeves, hems, fitted facing, mitered corners, making and placing a pocket, and the sewing on of tape. From the technical side, this balances well with other garments made for personal adornment. The only loss is from the costume design

side, but supplementing this, individual garments calling for originality of design can be carefully chosen to offset this deficiency.

The student's interest is intensified rather than diminished by the introduction of this Red Cross sewing, I find. The girls are anxious to be doing something worth while; and when the garment is finished, they come back to their own clothing with more enthusiasm.

The Junior Red Cross Society is putting new life into school work in many different ways. Aside from the tremendous psychological effect on the students themselves, their money is easily made accessible for the purchase of supplies. It had been a serious handicap to be dependent on the will of the local chapter as to whether it saw fit to appropriate money for the purchase of the particular supplies best adapted to the needs of the school. The approval of any proposed work is much more easily obtained if the chapter is not asked to bear the expense. Before the Junior Red Cross funds were available, we secured a great number of Belgian and French refugee garments through the voluntary contributions of the students. This has been done in the public schools of Chicago by requiring each child in the public schools to contribute one article during the year. Those which we secured here were from two sources, one a skirt and the other any garment made of old material, either or both of which contributed to the refugee work. About half of the work was donated, but it could have been made uniform had funds for the purchase of material been available. Now in the second year classes, black sateen pinafores and knickerbockers are being made with the Junior Red Cross fund. Manuals and patterns for these garments are available at any Red Cross Auxiliary.

The making of these refugee garments is of particular interest to the girls. It creates, through service, a spirit of kinship with other girls less fortunate than they—girls whose sacrifice is unselfish and whose burden is our own.

Thus the year has closed with our course of study revolutionized; with at least half of our time given to Red Cross work for our soldiers and Allies, with renewed interest in our work, more accomplished than ever before, and with old material utilized in a profitable way instead of merely discussed as a possibility. What can we not accomplish in the coming year with the funds immediately available from a Junior Red Cross membership campaign at the beginning of the school year and with this year's mistakes and successes as a guide in our planning?

PRESERVING-TIME

Said Mr. Baldwin Apple
To Mrs. Bartlett Pear,
"You're growing very plump, Madame,
And also very fair.

And there is Mrs. Clingstone Peach
So mellowed by the heat,
Upon my word, she really looks
Quite good enough to eat.

And all the Misses Crab-apple
Have blushed so very red
That very soon the farmer's wife
To pluck them will be led.

Just see the Isabellas
They're growing so apace,
That they really are beginning
To get purple in the face.

Our happy time is over,
For Mrs. Green Gage Plum
Says she knows unto her sorrow
Preserving-time has come."

"Yes," said Mrs. Bartlett Pear,
"Our day is almost o'er,
And soon we shall be smothering
In syrup by the score."

And before the month was ended,
The fruits that looked so fair,
Had vanished from among the leaves,
And the trees were stripped and bare.

They were all of them in pickle,
Or in some dreadful scrape,
"I'm cider," sighed the apple;
"I'm jelly!" cried the grape.

They were all in jars and bottles,
Upon the shelf arrayed,
And in their midst poor Mrs. Quince
Was turned to marmalade.

—*St. Nicholas*. September, 1884

EDITORIAL

Why not Join? The American Home Economics Association, like so many other organizations, is feeling the stress of war times. The new demands upon everyone for time, money, and effort are so great that the older claims are often set aside—sometimes of necessity, sometimes only thoughtlessly. Some of these claims we can well afford to disregard until the war is over; others have as great an importance now as at any time, perhaps even greater. Certainly any association whose primary object fits in so well with the needs of the day as does that of our own ought to receive full support. It is not only educational but it deals directly with the very problems of living that are confronting everyone, and it should be influential in serving the needs of a large portion of the population. Everyone is discussing Home Economics. Even the advertisements are using this term to attract attention. The subject is no longer in the background. It occupies the front of the stage. The Association ought to be as prominent as the subject. It should be standardizing teaching. It should be leading the efforts to have every man and woman and child informed in regard to the right use of food. It should be studying coöperative efforts in the preparation, the marketing, and the serving of food. It should be working effectively with the government, not only with the Office of Home Economics of the Department of Agriculture but with that whole department, with the Bureau of Education, with the Federal Vocational Board, with the Children's Bureau, with the Food Administration, and with every other agency that is working on problems that belong to us as truly as to them. As individuals the members of the Association have been active and efficient and have accomplished quite as much as any other body of people, but as an Association, we have been able to do far less than we should, largely because there has not been enough money available to justify the undertaking of any big piece of work.

The JOURNAL has a suggestion to make. The Association has now only three life members. Are there not 20 or 30 others who would like to add their names to this list by paying the fifty dollars required for life membership? Are there not alumnae of different institutions who will, by small contributions from many, make one or more of the instructors life members of the Association as a tribute to the inspiration received from them in former days?

FOR THE HOMEMAKER

THE WOMAN'S COMMITTEE SURVEY OF AGENCIES FOR THE SALE OF COOKED FOOD¹

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United States Department of Agriculture and Woman's Committee, Council of National Defense

To any one who has been following the news which filters in about food conditions abroad, one of the most striking developments appears to be the great increase of public or coöperative cooking. The big central kitchens established in the early days of the Relief Commission's work in Belgium, the development of the Volkskuechen in Germany and Austria (in July, 1916, it was reported that 85 per cent of the population of Frankfort was obtaining its food from such institutions), and the establishment within the last few months of the many so called National Kitchens in London and other industrial centers of England, probably find their parallels in all the countries of western Europe, except perhaps France, where curiously enough a few enterprises by the coöperative societies are almost the only ones developed in the emergency.

Such a growth is not in the least surprising. In the shortage of food and fuel and labor which war has entailed, it has been only natural that such an obvious way of utilizing the available supplies more efficiently should have come into effect. Nor was the idea entirely new in any of the countries where it has shown such forced growth in the last three or four years. The advantages of large scale cooking were shown in Count Rumford's work a century and a quarter ago. The idea of coöperative buying came into prominence not only in England but also in several continental countries toward the end of the eighteen-forties, as a consequence of the bad harvests and general hard times from which Europe then suffered, and has been gradually extending in the industrial centers ever since. Leipsic, Geneva, and Grenoble opened central kitchens for the preparation of food on a large scale and its sale to working people

¹ Presented at the Eleventh Annual Meeting of the American Home Economics Association, Chicago, June, 1918.

about the middle of the last century, and soon after similar movements started in Scotland, Italy, Austria, Belgium, Holland, Norway, Denmark, and France. Sometimes these were financed either in whole or in part by public funds; sometimes by well-to-do, philanthropically minded individuals or societies; sometimes on the plan of a stock company with small shares held by working people; sometimes it was found that a restaurant combined with a kitchen was not profitable until a shop for the sale of cooked food to take home was combined with it; sometimes the reverse held and cooked food shops proved profitable only when combined with a restaurant.

In this country such enterprises have been relatively few and unimportant, though some of the organizations which have attempted work along these lines have been extremely interesting to the student of such institutions and contained valuable suggestions for future work. We all know the significant work of the New England kitchen which was opened under the direction of Mrs. Abel on Pleasant Street, in Boston in 1890. Several coöperative cooking plans were also tried out in other places but most of these seem to have died young. The JOURNAL OF HOME ECONOMICS for August and September, 1915, contained a brief article by Charlotte Tally describing a coöperative kitchen in a suburban town, which was financed by a small company of stockholders with an original investment of \$1000, and which sent out well cooked, attractively served meals to individual house-holders at a reasonable price. It also provided waitresses when needed and evidently performed many of the functions of a good catering establishment, but at a lower cost than usual, and with more emphasis on the homelike quality and nutritive value of the meals. On the whole, however, nothing has been developed in this country, prior to the war, which corresponds to the Volkskuechen of Germany and Austria, the Fourneaux Economiques of France and Belgium, or the Cucina Economica Popolari of Italy.

Since war has come to us and has been increasing the disorganization of our supplies of food, fuel, and labor, and it has become more and more confusing for the housekeeper to try to follow the injunctions of the Food Administration, many have been wondering how long it would be before such a movement as that of the National Kitchens in England would be started in this country, and are surprised to realize that up to the present only two or three attempts of this kind seem to have been made. We have a large number of community establishments for preserving food and for demonstrating methods and use of food substitutes, but one could

probably count on the fingers of one hand all the significant attempts which have been made to do central cooking for the sake of saving materials and labor. The "Cash and Carry Kitchen" run by the women of the Central Food Committee of St. Louis is probably the most conspicuous among the enterprises so far started. This is located in a factory district and sells cooked food to the people in the neighborhood either for consumption in the cafeteria on the spot, to be distributed by push carts or wagonettes to the neighboring factories, or to be taken home. Quite different but none the less interesting is an attempt which is being made in New York to deliver ready-to-eat dinners to well-to-do families who are unable to secure servants as usual.

Another type of enterprise which must not be overlooked in this connection is the delicatessen shop or the corresponding department in the grocery or bake-shop. We all know how rapidly these have been developing in many sections of the country, but I fear few of us have any definite information as to how much saving of labor and materials is involved in this method of catering, or how the selling prices compare with the cost of production. It is worth investigation, however, as under proper control it might perhaps be made a means of conserving materials and labor while remaining on a strictly commercial basis.

Except for the kitchens which are an outgrowth of the coöperative buying societies in Europe and some organized by fairly well-to-do people in Austria and perhaps elsewhere, few of the public kitchens are on a basis which could be considered profitable to the investor. Even if the food is sold at prices intended to cover the actual cost, rent or part of the labor has been given free or at prices below the current rates, or the interest which would ordinarily be charged on the capital is waived or lowered. When this is the case, there is no winking the fact that the patrons are being subsidized for a part of the cost of their food. In a period of such stress as many foreign countries are undergoing this is probably inevitable, but in this country we are still justified in asking whether we have yet reached the point where we wish our people to be fed, even in part, at public expense or by private charity, and how we are to know when that point shall have been reached.

Should we not question seriously whether we cannot by foresight devise some means of limiting the extent to which the subsidizing would be necessary even should the emergency here become as acute as in Europe? If in advance of absolute necessity we could introduce self-supporting enterprises which would reduce the waste of food materials, fuel, and

labor, could we not lessen the later need for partially subsidized ones? And if we must in the end encourage the latter, should we not do it with full and frank understanding of the facts, and the possible effects on our social and economic life? Surely, even the most enthusiastic advocates of public kitchens must realize the dangers of supplying food at less than cost price, must wonder how the general practice of having food prepared outside of the home may affect the family life, as well as the methods of household management and equipment, and how it may complicate the problems of women in industry when peace comes and the millions of men now engaged in fighting or in supplying materials for the fighters are released for the lessened industries of peace.

The effects of such changes will undoubtedly be mixed good and bad, but since our own favored condition and the experience of others make it possible for us to plan our course a little in advance, is it not our duty to try to steer toward the benefits and away from the dangers?

It was with these possibilities in mind that the Department of Food Production and Home Economics of the Woman's Committee of the Council of National Defense asked the Council of National Defense for funds to conduct a survey of agencies for the sale of cooked foods to be consumed away from the place of sale, and the promptness with which the Council authorized the undertaking is, I think, a confirmation of its significance. An advisory committee has been appointed which consists of Mrs. Abel of Baltimore, Miss Breckinridge of Chicago, Miss Lucile Eaves of the Woman's Educational and Industrial Union of Boston, Miss Mabel Hyde Kittredge of New York, Dr. Vernon Kellogg of the Food Administration, Dr. Langworthy of the Department of Agriculture, Mrs. Ruby Smith of the Home Demonstration Service, and the writer as representative of the Woman's Committee.

In general terms, the plan is somewhat as follows: to collect all available data regarding pre-war enterprises in the United States and abroad, and those which have been developed in Europe since 1914, as well as those which are starting here as a result of the war. Mrs. Abel has for years been collecting material about such enterprises both here and abroad, and this she has generously placed at our disposal. With the help of Dr. Kellogg we hope to find some suitable person in England to collect detailed information regarding the National Kitchens there. These seem especially significant for our purpose because in many ways conditions in Great Britain resemble ours more closely than those in other parts of Europe. The files of the Food Administration will be

open to us for anything they may contain about foreign work, and Miss Kittredge has offered the help of her first hand knowledge of work abroad as well as in this country. We hope that among the many Americans now at work in the other countries we can find some who will be able to supply some of the most serious gaps in our information.

We hope soon to have some one at work collecting all this historical and descriptive material, and to have a report of this part of the survey ready for publication by autumn. Meanwhile we shall try to arrive at some means of estimating the economy of materials, labor, and money affected by different types of agencies as compared with each other and with household methods of preparing food. The Woman's Educational and Industrial Union has collected very valuable material on the cost of food prepared in quantity, and we may be able to work out some plan of co-operation by which we can avoid the necessity of duplicating that work. These are, of course, only a few of the points which will come up as the investigation progresses. It ought to be possible to conduct it in such a way that it will answer such questions as the following:

Do conditions in this country, either generally or locally, warrant the opening of public kitchens similar to those established abroad since 1914?

Do labor conditions, especially those governing the employment of women in industry, require the removal of labor from the home to the extent now necessary in Europe?

How great a saving of food materials, fuel, and labor do such kitchens secure?

To what extent is it desirable to subsidize such enterprises, either directly by public or private funds or indirectly by furnishing rent-free quarters, unpaid volunteer labor, etc.?

Would the development of such commercial enterprises as delicatessen shops, possibly under some form of official control, serve some of the purposes of the public kitchens with less likelihood of introducing social and economic complications?

If public kitchens or similar enterprises are started should they be considered as probably for the emergency only, or should they be encouraged as permanent institutions?

If they are to be opened, what types of organization, equipment and operation are best adapted to communities of different size and kind?

What is the minimum number of patrons for which they can be maintained economically? Is it possible to plan a "unit organization" for a small number (say 500) and increase the number of these units as the number of patrons increases, or is it more economical in larger communities to operate from a central plant with distribution offices in different sections?

Could a series of suitable type menus be provided expressed partly in terms of type foods rather than specific articles ("green leaf vegetable" instead of "cabbage" or "dandelion greens," "succulent fruit" instead of "apple" or "orange") which could be easily adapted to changing market conditions and cover a sufficient number of days to avoid monotony?

In short, if it accomplishes what is hoped for it, our survey ought to provide at least a partial and disinterested answer to many of the questions forced upon us by the possibility of coöperative feeding in the United States.

FOR BETTER DOMESTIC SERVICE

The so-called "servant problem" is being attacked from a new angle in Calgary, Canada. This time the attempt at solution is being made not by employers but by the employed who have formed an organization whose slogan is "Give better, more efficient service and demand more consideration." The organization is thus described by Estelline Bennett in *The Public* for June 15:

When the Calgary Housekeepers' Association was organized last summer it announced that its object was "to secure a better recognition of the dignity of the position of housekeepers; to obtain for them proper conditions of work including a standard wage and a maximum day; to defend its members against unfair treatment by employers; to provide for the comfort, safety, and efficiency of its members without prejudice to the rights of employers."

That did not look as though the way was to be made any smoother for the lady of the house. Neither did the printed contract that was drawn up for the use of members of the association in accepting positions seem to help matters any: "I, ———, Housekeeper, hereby promise good behavior and my best services to Mrs. ———, Employer, on the following terms: The rate of wage shall be \$— per month, payable at the close of each month. Ten hours shall constitute a day's work on week days and six hours on Sunday and on public holidays. If more hours work are required in any day they shall be regarded as overtime and shall be paid for at the rate of 15 cents an hour. I shall have every Sunday evening free after half past six o'clock, unless otherwise mutually agreed upon.

"The employer will speak of me as her 'Housekeeper' and shall address me as 'Miss ——.' The privilege of entering or departing by the front door shall be accorded me if I wish to use it, also the use of a suitable room one evening a week in which I may entertain my friends until ten o'clock, it being understood that the home will not be unpleasantly disturbed by such entertainment. I will make it a rule to be in my employer's house at 11 p.m. unless otherwise mutually arranged, and to preserve the quiet of the hour.

"Proper board and comfortable and sanitary lodgings shall be provided for me by my employer.

"This engagement of service may be terminated at any time by either party giving two weeks' notice to the other party. Less notice may be given if mutually agreed upon, and in case of the violation of any of the terms of this agreement, either party may terminate the engagement immediately."

All this sounded terrifying to the housekeepers of Calgary. They thought they were having trouble enough. Since the war had depleted the ranks of the men workers in the city and women had gone into positions never open to them before, there had been an increasing dearth of competent servants. In fact there was a lack of any kind, competent or otherwise, for the cessation of immigration cut off the usual unskilled contingent. A few housewives were friendly to the new organization and went to an occasional meeting to encourage "the girls," but most of them were on the defensive.

"I'll have no maid in my house that belongs to that organization," one prominent matron defied.

"I'd like to find out," said another, "just what they mean by 'good behavior,' and their 'best services.' So often ideas differ on those things. I'd like to know just what it is they propose to give in exchange for all these demands."

News of an arbitration committee in the Association did not help matters any. The members of the committee were of course members of the Association. No employer was to be asked to help arbitrate. The duties of the arbitration committee were, according to the constitution, "to receive complaints from either members or their employers and seek to adjust the difficulty with justice to each party. If the finding of the committee is rejected by either party the matter shall be reported to the Association and it may proceed to advise, admonish, or suspend the member complained of, or to tabulate the employer as unfit to engage a member of the Association."

One rule of the Association that aroused no unfavorable comment was that a uniform dress should be worn "with a distinction to indicate whether the wearer is certified or uncertified."

The constitution also announced that members might make trial engagement with employers before signing the contracts.

Altogether the organization of the Housekeepers' Association occasioned

considerable unrest among the women between whose slim pink finger tips and the disfiguring dishwater stood the members of the Association.

But the summer waned and Calgary's glorious fall slipped into early winter and nothing more was heard from the Housekeepers' Association.

Maids continued to come and go by the back doors of Calgary as of yore. They answered to the name of Biddy, Christine, Violet, or Mary as the case might be, and worked as many hours as seemed necessary to the comfort and convenience of the household. Those few who thought about the matter at all realized that the quiet was too intense to be altogether safe, and surreptitiously they looked into the matter.

This is what they found:

A little band of serious-faced women and girls going about their daily tasks as usual and meeting once a week in the evening to study diligently the art and science of the craft they proposed to raise to a profession respected among men—or more literally, among women. They had a regular course of lectures in Housekeeping Science which included cooking, canning and preserving, simple dietetics, household management, home management, home sanitation, table setting, marketing, and laundry work.

When the members of the Association have finished this course they expect to be so competent that employers will be delighted to meet them on their own terms.

"It is not right," said Miss Manning president of the Association, "to make demands in regard to wages, hours, and little considerations, for work indifferently done. We must be thoroughly competent housekeepers. We propose to make this training so thorough that any woman employing a member will have the assurance of an intelligent, trained housekeeper. If other cities follow our example, we will revolutionize domestic service."

STANDARDIZED DRESS

ETHEL RONZONE

In order to eliminate changes in fashion and to provide for women a type of clothing which will be hygienic, modest, and economic in accordance with our best knowledge of the subject and which will be in harmony with our social attitude, a design was worked out in the Home Economics Department of the University of Missouri under the direction of the author.

The beauty of this costume depends upon the simplicity of line, good proportions, and absolute adaptability to the needs of the body. Variations in color and texture of fabric, so long as they do not interfere with health, economical production, our standard of modesty, and our knowledge of what is harmful, may be used. Standardization should include not only the dress, but the whole wardrobe of the woman—underclothing, shoes, stockings, hats, gloves, and coats.

The design so far worked out is a two piece dress. The skirt, for convenience and in order to be perfectly hygienic, is either suspended from the shoulders by means of a sleeveless waist or buttoned on to an under waist which would take the place of a corset. This skirt is from two to two and one-half yards around the bottom, depending on the height of the person wearing it. It is from 4 to 10 inches from the floor. This is wide enough and short enough to allow freedom of movement and uses no surplus material.

The waist is adapted from the Russian blouse, the lower part extending down over the hip to conceal the lines of the uncorseted figure. The fullness is held in slightly at the waist line by a separate belt. Pockets placed at either side are a great convenience. Sleeves are simple with no fullness at the top. The neck is cut in a slight V-shape and is finished by means of a rolling collar.

The following variations may be used:

Skirt

1. Four-piece; seam in back. Open in front with plait. Pockets on either side at side seam.

2. Four gore. Panel in front and back. Pockets on either side of front gore.

3. Three piece. Seam in back. Pocket and opening on side seams.

4. Full straight skirt gathered on in soft plaits at belt.

Any of these may be made slightly gathered at the waist. This is better for the uncorseted figure as it allows the skirt to fall easily in place.

Waist

1. Plain. Open down front.

2. Yoke. Side plaits, three on each side front and two each side back.¹

3. Jumper to slip over head. Sleeves and collar fastened to guimpe.

¹ This variation might well be omitted because of the extra material required.

Collar

1. Rolling collar to be worn with or without tie.
2. Rolling collar with tie a part of collar.

Sleeves

1. Plain coat sleeve. Open three and one-half inches so that it can be turned back. Cuff, facing stitched back.

2. Plain sleeve. Slight amount of fullness into three-inch cuff which can be opened.

The dress requires no trimming. The plainness may be relieved by the addition of collars and cuffs of different material, but always without useless decoration. These collars and cuffs are especially necessary for winter dresses which need protection around the neck and sleeves. They may be made to snap on the waist so that they can be removed and laundered without trouble. A bright tie may be added to complete the costume.

Many women, who for patriotic or economic reasons were interested in adopting a standardized dress, made the transition to this costume by getting one in the spring to be used as a suit during the spring and summer, so that blouses already on hand might be worn out. In the fall the suit may be converted into an entirely satisfactory dress by the simple process of eliminating the shirt waist.

HOW CAN I SAVE SUGAR ON A 2 LB. RATION?

*Instead of**Try**Breakfast*

Fruit 1 Rounded Teaspoonful
Cereal 2 Rounded Teaspoonfuls
Coffee 2 Rounded Teaspoonfuls

No Sugar
No Sugar
1 Rounded Teaspoonful

Luncheon

Tea 1 Rounded Teaspoonful
Other dish 1 Rounded Teaspoonful
Making 7 rounded teaspoonfuls a day; or
over 4 pounds a month.

1 Level Teaspoonful
Making 1½ rounded teaspoonfuls a day
for table use; or only 1 pound a month,
leaving 1 pound for other uses.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Everywoman's Canning Book. By MARY B. HUGHES. Boston: Whitcomb and Barrows, 1918, pp. 96. 75 cents.

This canning book deserves very favorable mention as a compilation, in convenient and attractive form, of directions and recipes that cover most of the needs of the housekeeper for such help.

The general directions for canning, divided into six distinct steps, and the explanation of correct processing would be clear to any beginner.

The chapter dealing with "questions most frequently asked" is especially good, and would dispel the doubts and fears of many timid housewives.

After the general plan of canning is presented, the directions for each product are complete, and do not refer back to some other fruit or vegetable. This is very satisfactory, for the amateur who is canning peaches does not want to look back to the directions for strawberries.

The jelly chapter gives all the information that is necessary for good results, and various recipes indicate the best fruits to be used.

In the many good directions for relishes, sweet pickles, and spiced fruits it might be suggested that corn syrup could be substituted for the sugar, and even in the jams and marmalades it is quite possible to use one-half syrup.

The pages on drying are interesting and explicit but it might be added that sweet pepper will dry much better if baked or scalded until the skins strip off, and more might be made of the drying of tender young carrots, beets, parsnips, salsify, etc. The difference in flavor between these vegetables dried in their prime directly from the

garden, and the larger, coarser, mature ones brought into the market from storage, is very great, to say nothing of the financial saving.

Altogether the book is a desirable one, and will be a help in many kitchens.

NANCY G. GLADISH.

Food Primer for the Home. Compiled by Lucy H. Gillett. New York: Bureau of Food Supply, Association for Improving the Condition of the Poor, 1918, pp. 20. Price 25 cents.

Miss Gillett's investigations in connection with the work of the Association for Improving the Condition of the Poor have especially equipped her to put together this most attractive and helpful little book. The nine food charts of the A. I. C. P. have been used as illustrations, and each picture is faced with a page of brief statements in regard to food habits in the form of a few questions with simple answers. The book should be of especial value in teaching those of limited education. Even those who cannot read English well, will be able to interpret the pictures. The type of question and answer used is well illustrated by those facing the picture of William and James in "The Race For Life."

"Why does William look so pathetic?"

"William is beginning to feel that he is not strong enough to play as hard as the other boys. He feels tired sooner than they do and often can't play at all. He has a cold frequently."

"Is there any reason for William's lack of energy?"

"William eats bread and coffee for breakfast. His mother thinks it takes too long to cook the cereal. His breakfast furnished

only about half as much food value as James' breakfast.

"He eats a bite here and a bite there throughout the day. He has no regular eating times. He eats anything he happens to see which appeals to him. He eats it hurriedly, too.

"He eats a great deal of white bread, meat and coffee with lots of sugar in it.

"It is not a difference in cost. The chances are that William's food costs more than James'."

ALICE P. NORTON.

The Practical Cookbook. By MARGARET W. HOWARD. Boston: Ginn and Company, 1917, pp. 152. \$0.72.

This compact but comprehensive cookbook, by the use of the tabular form for recipes, attempts to show their relations. Such a scheme is particularly clarifying to the novice in cooking. There is great variety in the recipes given, all of which require no unusual or expensive ingredients. A valuable addition to the subject matter of the ordinary cookbook is found in the short but clear chapters on diet. This material on the nutrients and upon the selection of food and balancing of menus with examples of well and poorly balanced meals should be most welcome to the housekeeper interested in the health of her family. The book is a good attempt to put simple scientific material in an untechnical systematic form.

EDITH H. FORSTER.

The Small Family Cookbook. By MARY DENSON PRETLOW. New York: Robert M. McBride and Company, 1917, pp. 206. \$0.85.

This book entices one further and further with its whimsical remarks. The recipes are tasty, of good variety and generally not very expensive. There is nothing scientific about the book. It is full of inaccuracies. Sections are devoted to old Virginia and to German recipes. It is an entertaining and suggestive but unenlightening cookbook.

EDITH H. FORSTER.

The High School Cookery Book. By GRACE BRADSHAW. London: Longmans, Green and Company, 1916, pp. 266. \$0.90.

The High School Cookery Book is a logically compiled text book especially prepared for use in secondary schools and training colleges. The book opens with a chapter entitled, "The Bearing of Microorganisms on Food and Cookery." Part I is devoted to Kitchen Organization; part II to Foods and Cooking. The concluding chapter gives summary and criticism, questions and practical tests.

The material is carefully organized, concisely stated, and rendered easily available through the use of clearly indicated sectional and paragraph headings. There are some good diagrams and simple experiments and many practical recipes most of which are grouped and classified for comparative study.

CARRIE ALBETTA LYFORD.

Thrifty Clothing. By MRS. ANNA HEDGES TALBOT, New York State Specialist in Vocational Training for Girls, Flushing, N. Y., 1918, pp. 30. \$50.

As the title suggests, this pamphlet is devoted to a large degree to the making over of materials. However, it is not as comprehensive as its title, and deals with the making of children's clothing from the worn or partly worn garments of adults. The adult's clothing is diagrammed in its ripped state and the patterns for the smaller garments are shown fitted into these diagrams. The criticism of the pamphlet would be that very little allowance is made for the worn parts in the adult's wearing apparel. For instance, practically all parts of a man's shirt are utilized to make children's clothing which if made from most men's discarded shirts would hardly last long enough to stitch. The pamphlet is valuable as a suggestion of possibilities of remodeling. It is printed on good paper, with legible type and has good drawings and illustrations.

JEAN G. MACKINNON.

BOOKS RECEIVED

- The Blue Grass Cook Book.* Minerva C. Fox. New York: Charles Scribner's Sons, 1918, pp. 350. \$1.50.
- Department Store Merchandise Manuals.* New York: The Ronald Press Company, 1918. \$1.50 a volume. *The Educational Director*, Beulah Elfeth Kennard, M.A., pp. 207; *Glassware*, Mary Lehmann, B.A., pp. 161; *House-furnishings*, E. Lillian Hutchinson, B.A., pp. 229; *Millinery*, Charlotte R. Aiken, B.A., pp. 175; *Silk*, Eliza B. Thompson, pp. 224.
- Economical Cookery.* Marion Harris Neil. Boston: Little, Brown and Company, 1918, pp. 346. \$1.50.
- Economy in Food.* Mabel Thacher Wellman. Boston: Little, Brown, and Company, 1918, pp. 36. \$.30.
- The High Cost of Living.* Frederic C. Howe. New York: Charles Scribner's Sons, 1917, pp. 275. \$1.50.
- The Hospital As a Social Agent in the Community.* Lucy C. Catlin, R. N. Philadelphia: W. B. Saunders Company, 1918, pp. 113. \$1.25.
- Industrial Survey of Cincinnati.* Garment Making Industries. Cincinnati Chamber of Commerce, January, 1917.
- The Liberty Cook Book.* Bertha Stockbridge. New York: D. Appleton and Company, 1918, pp. 493. \$2.00.
- Sewing and Textiles.* Annabell Turner, B.S. New York: D. Appleton and Company, 1918, pp. 246. \$1.75.
- Economical War-time Cook Book.* Janet McKenzie Hill, Boston: The Boston Cooking School Magazine Company, 1918, pp. 64. \$.25.

PAMPHLETS RECEIVED

Issued by the United States Food Administration:

The Day's Food in War and Peace.

Issued by the United States Department of Labor, Children's Bureau:

Child Care, Part 1. The Pre-school Age. Mrs. Max West. Care of Children Series No. 8, Bureau Publication No. 30.

Issued by the Department of the Interior, Bureau of Education:

Home Economics Circulars: No. 2, *Current Problems in Home Economics*; No. 3, *Home Economics Teaching in Small High Schools*; No. 4, *Principles and Policies in Home Economics Education*; No. 6, *A Course in Food Economics for the Housekeeper*.

A Community Center. Henry E. Jackson. Bulletin, 1918, No. 11.

Teacher's Leaflets: No. 2, *Education in Patriotism*; No. 3, *Government Policies Involving the Schools in War Time*.

The Land Grant of 1862 and the Land-Grant Colleges. Benj. F. Andrews. Bulletin, 1918, No. 13.

Training in Courtesy. Margaret S. McNaught. Bulletin, 1917, No. 54.

Issued by the United States Department of Agriculture:

The City and Suburban Vegetable Garden. H. M. Conolly. Farmers' Bulletin 936.

Experiments on the Digestibility of Fish. A. D. Holmes. Bulletin No. 649.

- Farm Home Conveniences.* Madge J. Reese. Farmers' Bulletin 927.
Farm and Home Drying of Fruits and Vegetables. Joseph S. Caldwell. Farmers' Bulletin 984.
Marketing Butter and Cheese by Parcel Post. Lewis B. Flohr and Roy C. Potts. Farmers' Bulletin 930.
Save Wheat—Use Wheat Substitutes. Kitchen Card. States Relations Service.
Studies on the Digestibility of Some Nut Oils. A. D. Holmes. Bulletin No. 630.
United States Food Leaflets: No. 16, *Fresh Vegetables*; No. 17, *Use More Fish*; No. 18, *Rice*; No. 19, *Hominy*; No. 20, *Wheatless Breads and Cakes.* (U. S. Dept. Agr. and U. S. Food Administration.)
Use Barley—Save Wheat. Circular No. 111.
Use Peanut Flour to Save Wheat. Circular No. 110.
Use Soy Bean Flour to Save Wheat, Meat, and Fat. Circular No. 113.
Women on the Farm. Clarence Ousley.

Issued by the United States Public Health Service:

- The Application of Ozone to the Purification of Swimming Pools.* Wallace A. Manheimer. Reprint No. 456.
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NEWS FROM THE FIELD

The Eleventh Annual Meeting of the American Home Economics Association was held at Hull House and the University of Chicago, Chicago, Ill., June 27 to 29, 1918. There were three sessions daily. The program was extensive in scope, timely in interest, and the speakers presented their subjects effectively.

Five council meetings were held, with an average attendance of eighteen.

Miss Sarah Louise Arnold, as Chairman of the Committee on Reorganization, presented the following as the reaffirmed policy of the Association:

"It is voted to work through the coming year, individually and collectively, in full coöperation with government agencies, to forward the following causes:

I. To establish and maintain instruction in the elements of home management, including the principles of nutrition, the proper choice and preparation of foods, thrift and economy in the use of clothing, fuel, and other household essentials, to all girls in the higher elementary grades and in the high schools, at least in the first two years.

II. Inasmuch as the administration of the household is of common interest and importance to both men and women, and the maintenance of the individual away from home also demands an understanding of these matters, to urge appropriate instruction for boys as well as for girls, as far as practicable, in matters relative to the welfare and maintenance of the individual and of the home.

III. To promote the establishment of departments of home economics in normal schools and colleges, and of courses dealing with questions of public health, nutrition, and thrift, open to all students, both men and women.

IV. To coöperate in the extension of home economics instruction in the conserva-

tion of food, fuel, clothing and other household essentials to housewives desiring such assistance.

V. To further, individually and collectively, the campaign for child welfare through the establishment of courses of instruction in child care and child welfare in schools and colleges, and through active coöperation with the Children's Bureau.

VI. To aid all community enterprises which extend the ideals of home economics or promote the improvement and maintenance of health.

VII. To support and maintain the *JOURNAL OF HOME ECONOMICS* as a means of extending knowledge of the subject and of promoting thought and discussion.

VIII. To promote research by encouraging and aiding investigations and research in universities, and by meetings local and national, in order that knowledge may be increased, and public opinion informed, and advancement made secure by legislative enactment.

IX. To give active support to all legislation, state and federal, which aims to secure any of the ends which we are working to promote.

X. For the above purposes to rally all the members of the national association; to stimulate local and state associations to increased endeavor in these directions; and to ask for the coöperation of other existing volunteer agencies now engaged in related movements such as the Federation of Women's Clubs, the Red Cross, Social Service Organizations, Public Health Nursing Associations.

The Council of the Association is hereby authorized and empowered to take appropriate measures to forward this program."

It was agreed by all members present at the meeting Friday afternoon, June 28, that each should assume a definite respon-

sibility for increasing subscriptions to the JOURNAL OF HOME ECONOMICS, each member present pledging herself to secure a definite number of new subscriptions.

At the Annual Business Meeting, held on Saturday, June 29, announcement was made of the election of the following officers:

Elected by the Council: President, Miss Edna White; Secretary, Miss Cora M. Winchell; Treasurer, Mr. H. G. Turpin.

Elected by the Association: Vice-President, Dr. C. F. Langworthy; Councilors (terms expire 1923), Miss Maude Murchie, State Superintendent of Teacher Training Class, Sacramento, California; Miss Florence E. Ward, States Relations Service, Office of Extension Work, North and West; Miss Alice Ravenhill, Agricultural College, Logan, Utah; Dr. E. V. McCollum, Johns Hopkins University, Baltimore, Md.; Miss Mary Gearling, University of Texas, Austin, Texas.

The following plan for regular meetings of the Association was announced at this meeting:

(1) A sectional meeting, to be held at the time and place of the Department of Superintendence, N. E. A.

(2) The annual meeting, to be held during the week preceding the annual meeting of the N. E. A., and at a place convenient to the N. E. A. meetings.

(3) A sectional meeting, immediately following the annual meeting, at the N. E. A. meeting.

Mrs. Henrietta W. Calvin was reappointed chairman of the program committee with the chairmen of the sections as the members of her committee.

Expressions of appreciation were voted by the Council to retiring officers, to the speakers from other organizations, to Mrs. Alice P. Norton and Miss Keturah Baldwin for their effective services on the JOURNAL OF HOME ECONOMICS, and to Mrs. Calvin as chairman of the program committee for the annual meeting; and to all those who had rendered hospitality to the Association at the annual meeting.

The personnel of the JOURNAL Board and the Ellen H. Richards Fund Trustees will be found elsewhere in the JOURNAL.

The sectional meetings were well attended and specific plans were outlined for the year's work. The chairmen for the ensuing year are as follows: Institution Economics Section, Elsie Leonard; Extension Section, Agnes Ellen Harris; Textiles Section, Grace Denny; Science Section, Katharine Blunt.

CORA WINCHELL, Sec'y.

An Educational War Service Campaign was carried on in the public schools of New York City, May 27-June 7, under the Division of Domestic Science, assisted by the Department of Physical Training.

During the period of two weeks, the time devoted to hygiene in every school room in New York City was given to instruction in the value, use, preparation, and conservation of food, in a practical, homelike way, directly applying to the present necessity for food and health conservation. The main emphasis was placed on the use of right foods; save for the war; keep well, that the doctors and nurses may serve our soldiers and the people in Europe.

As part of the campaign, 1,957,800 Food Administration leaflets were taken to the homes of the New Yorkers, by the hands of the school children. These bulletins were provided by the City and Federal Food Administrations, on the subjects—"Milk," "Cereals," "Fruits as Substitutes for Sugar," and "Vegetables." In addition 88,000 lesson outlines appropriate to the different grades were distributed for the teachers' use. These were printed by the boys of the vocational schools.

In every school one or more assembly periods were devoted to the subject of food conservation. These were conducted by lecturers provided by the Domestic Science Department, the Federal and City Food Administrations, the City Bureau of Public Markets, and the Department of Health.

THE
Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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The safety of our nation depends on community defense against disease at home as well as on success in the struggle against Prussian autocracy abroad. Through the development and extension and improvement of the public health nursing service we can help to build up the national forces that can win the war, and we can render to our allies through this peculiarly American type of social service, material aid in the reconstruction that must follow afterwards.

C.-E. A. Winslow

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OCTOBER, 1918

No. 10

TEACHING THE CLOTHING BUDGET

JANET G. CATION

Iowa State College

A few years ago, a young boy was working for a dry goods store during his Christmas vacation. He was assigned to a delivery wagon with another young man and his new job increased his appetite to such an extent that he found it necessary to stop at his home several times a day for something for himself and his pal to eat. One night when he came just at supper time his mother asked him to bring his friend in for supper.

The friend, after eating heartily, remarked that that was the best meal he had eaten since he had been married two years before. He then told his hostess how, soon after completing high school, he had eloped with his childhood sweetheart, never dreaming of the future, of their parents' wrath, of being turned out of their homes and thrust entirely upon their own resources; yet this was exactly what happened to him.

He had had no training for commercial work, nor for a skilled trade, and the only thing which offered itself at that time was driving a delivery wagon for which he received ten dollars a week. He and his wife found some furnished rooms, and started housekeeping. The young wife was no more ready for her profession than was her husband for his, but she had no difficulty in starting a grocery charge account. Her first week's bill was \$12.00.

"We got behind then, and we've never been able to catch up," he concluded.

What a tragedy for two young people to go through high school without learning the best way of dividing a dollar!

A domestic science teacher tells this story:

A few years ago I taught where I could go home for an occasional week-end. I was continually surprised at the seemingly unnecessary things my sixteen year old sister was always buying. I often said to my mother, "Why did you let Margaret get that?"

"Well, all the girls in the neighborhood have it and I hate to have her go without," the reply would usually be.

Many times I would hear Margaret ask, "May I get a certain thing? Ruth has it." If her first demands weren't successful, her later ones usually were.

One time, my mother had twenty dollars to spend for a dress, and instead of getting the dress, she put ten of it into a muff for my sister.

This time I became angry. I remarked, "How far is this thing going? Do you let Margaret get everything she wants?"

"You have no idea of the problem of the mother with a moderate income, whose children associate with girls who have everything they want," my mother replied. "I'll do a good deal to keep peace in the family."

Several months passed, before I realized that I was to blame for this state of affairs. I wasn't helping them solve their difficulties.

The time came when Margaret wanted a new party dress. "Whom in the family do you want to go without something in order to let you have it?" I asked. She didn't want anyone to go without, but didn't see why any one should.

Then we sat down and did some figuring. We looked up the division of the income in Kinne and Cooley and found that only 15 per cent should be spent for clothing.

We divided that amount up between the five members of the family, giving her by far the largest share, because being a girl, she needed more than our brother who was also in high school. Being sixteen she needed more than our ten year old sister, and couldn't have things made over so easily. Being out every day, she needed more than mother.

Next we computed in a rough way, the cost of her clothes for the past year, and found that she far exceeded her rightful share.

"Now," I said, "it is no problem for Ruth to buy clothes, for her father makes much more money than our father does, but you have a wonderfully interesting problem, and we'll not tell anyone, but we'll see how well we can solve it."

"Not tell anyone," she replied, "I want to tell Mary and Louise right way, so we can all do it."

So I helped all three girls plan their budgets, and when I came home I had all three to look over.

Meanwhile the other mothers confided that they could not afford all they got for their girls, but let them get things because the others all had them.

All three girls are still keeping budgets. All, now, have their allowances, and the question of clothes is rarely mentioned in our homes.

Last summer, I was on a street car with one of my pupils. I never saw her look so attractive, and I said to her, "Francis, that is the prettiest dress I've ever seen you wear."

"Yes," she replied, "I just teased and teased pa for it. He didn't want me to have it, but I finally got it out of him. It cost \$16.50."

If girls understood the division of the income, would they tease and tease for things? Would they be willing to see \$16.50, from a week's salary that was not much larger, go for a single dress? Would these children make their parents miserable by wanting more than their share?

Why have we not taught the clothing budget? Perhaps the main reason is that we have had no concrete information in our books as to how to do it.

How shall we begin? I usually start by explaining to the girls that the budget is merely a plan to determine in advance the sum one may spend for clothing for the year. As a foundation for the work, an inventory must be taken of the clothing on hand.

If girls have never done this, they will think it is an impossible task, for they can not remember what they have, nor what their clothes cost. They will find it much simplified when they group their clothing into outer garments, under garments, shoes and stockings, hats and gloves, miscellaneous (as handkerchiefs, ties, veils, and ribbons).

Our next step is to choose an income of \$1200, since we try not to be personal. Although this is higher than that of the average of our students, it is difficult to do much figuring with anything less.

The division of the income has changed materially since prices have advanced, but economists do not allow us any more for clothing; so for our \$1200 income, we must keep as nearly as possible to our 15 per cent or 20 per cent at most.

We selected the typical family of three children, choosing as the ages a girl of sixteen, boy of fourteen, and girl of twelve. Next we divided the \$240 into amounts for each member of the family.

Now we returned to the girls' own budgets. Most of them were about \$125 and it did not take them long to see that they were too high.

How to reduce them was our next problem. We analyzed the budgets, picking out the necessary things, and the things they seldom wore. This brought up the question of how they bought things and why they bought them. Perhaps they were attracted by a belt or a tie which was only a fad and did not harmonize with their other clothing.

It is the experience of most people that the useless things in the wardrobe are those things bought on the spur of the moment, without thought of future use. I myself once bought a dress to wear to an exclusive party. It was exactly the thing for that party, but I did not stop to think that it would be many a month before I should have another occasion to wear such a dress. It hung in my closet for years. I think I wore it three times in all. It would have been far better for me to have bought a much simpler dress that I might have worn on more occasions.

The best dressed woman I know has one of the smallest wardrobes I have ever seen. She plans her clothes so carefully that she never has even one superfluous thing. She does not decide suddenly, but thinks months ahead of what will suit her needs for the next season. She told me in June what she intended getting this fall, and I know that when I see her, I shall find that she got practically what she said she would.

Careful planning, then, is necessary if we live on a budget. In our budget study at Ames, we decided that in order to do this careful planning we must know something about values in our own town. Such questions came up as: How much must we pay for a ready-made dress? How cheaply can we duplicate the ready made dress? How much better dress can we have, if we make it, putting the cost of the ready made garment into material? Through an appropriation at the college, we were able to make some garments to find out the answers to these questions. I think the same scheme could be worked in any school, through the coöperation of the mothers' club, for many mothers would gladly furnish materials, if they could have the completed garments.

I had made the remark earlier that one could make a dress for the twelve year old girl for a certain low sum, for I had done that very thing a few weeks before. I live in a city where each year a store has a big mill-end sale, and sells remnants of standard materials at a very low price, and the question came, "Can we buy things as reasonably in the small towns?" We found some very inexpensive gingham marked down on account of undesirable colors, and got samples of these materials and made the laundry tests. We also tried setting the colors before we made them up to be sure these cheaper materials would give satis-

faction. The fact that there was a real purpose in these tests made the girls much more interested in them than they would have been otherwise. These tests were made in January, 1917, but the comparison will still hold good, although 1918 prices have greatly advanced.

The result of our study of values showed us:

1. The average priced good ready made dress cost \$1.50.
2. An exact duplication made in our class cost 78 cents for materials. Although the home made was half as cheap, 72 cents for labor was not high. Since we have many girls from farm homes, we must decide whether it will be more economical to make clothes, or spend the time on remunerative farm work.
3. If we put the \$1.50 into material, we could make a dress equal to a \$3.50 ready made.
4. Bloomers could be bought as economically ready made as we could make them.
5. Petticoats could be made for about half the cost of ready made.
6. Nightgowns could be bought reasonably.
7. There was a decided saving in buying ready made clothing at the end of the season, or garments which were soiled.

Through shopping both in a large city and a small town, I found that in the small town the standard materials are apt to be a little more expensive, but the more expensive materials were far cheaper.

In ready made clothes, since there was not the demand in Ames for the expensive garments, the better grade garments were cheaper than in nearby cities, although the assortment was not so large.

I could only warn my girls of the snares of bargain counters that one often meets in the cities, for I found no bargain counters where inferior goods were brought in to be pawned off on the unsuspecting public.

My second year girls compared ready made and home made wool dresses. We bought the cheapest ready made dress that contained any wool, then bought material and made a wool dress for the same price. (These comparisons were made before the wool shortage was apparent.)

We tried the alkali tests on the two pieces, and found that the home made dress was of far better material. We considered, too, the value of making over a wool dress. We ripped up an old suit, washed, dyed, and pressed it. Meanwhile we learned the characteristics of wool, much better than if we had only talked about them. The girls learned more in planning that dress and making it, than they did on any other problem during the year.

Although we proved that wool dresses that cost about \$15 ready made, could be made for \$7, several of the girls were not willing to give up the ready made ones. They liked the spick span tailored look, and thought a home made dress looked the part. All could see, however, that if they had only \$7 to spend for a dress, and they desired a \$15 one, something must be sacrificed.

Our budgets as they finally stood were: \$45 for the 12 year old girl; \$50 for the 14 year old boy; \$80 for the 16 year old girl. These were not as low as they should be, for this left only \$70 for the clothing for the mother and father, but it is difficult to do any better unless the children are much younger than those we have chosen.

Let us consider again the high school girl's budget. We found last year that on an average the per cents for different divisions of clothing were: 50 per cent for outer garments; $12\frac{1}{2}$ per cent for under garments; 18 per cent for shoes and stockings; $12\frac{1}{2}$ per cent for hats and gloves; 7 per cent for miscellaneous. These per cents will probably have to be changed the coming year, when a larger amount will be needed for shoes and stockings. This amount may be taken from hats and gloves or miscellaneous. Last winter, several girls found that they could reduce their glove allowance by substituting cotton mittens for the kid gloves which they had been in the habit of wearing. They not only saved money but also had the satisfaction of feeling that they were conserving leather.

In our budgets for \$80, the amounts for the different divisions were: \$40 for outer garments; \$10 for undergarments; \$14.40 for shoes and stockings; \$10 for hats and gloves; \$5.60 for miscellaneous.

Does this not suggest problems to the teachers of Domestic Art? Does it not give an extra responsibility in planning our sewing courses?

If we figure in the budget that \$10 should cover the cost of underwear for the year, and if we allow 75 cents as my girls did last year for a petticoat, should we not show them how attractive a garment can be made for that price?

Simple handwork, stickerei braids, and scalloped ruffles of the materials should take the place of laces and embroideries. The ingenious teacher must never stop her quest for inexpensive trimmings and suitable designs for handwork. For the past two years, I have not used one yard of embroidery in my high school classes, and the results seem equally satisfactory to the daughters of college professors getting \$3000 a year and college janitors getting \$700.

In connection with our budget work this year we must lay great stress on the use of the other textiles in place of wool.

We should also urge the girls to see that no wool is wasted. If a girl outgrows a wool dress, she should remember that there are many people in need of it, both in our own country and abroad. If the dress has to be remodelled, there should be a place in the curriculum for such work.

It seemed as if the lovely colored sweaters so much in vogue last year were just as popular in June, 1918, as earlier in the year, among our high school girls. Are we doing everything we can to inform the pupils in our schools of the wool shortage? Would they be as anxious for the sweaters, attractive as they are, if they realized that the wool which goes into them may be actually needed to keep the soldiers warm?

Budgets must not be a series of lessons, which we finish quickly. They must be lived every day in our clothing work. Every teacher should know the value of the budget through her own experience.

Finally, all summed up, the following are the reasons why we should teach the clothing budget:

1. More than ever before it is necessary to understand the division of the income.

2. It is only with most careful planning that the family can be clothed on 15 to 20 per cent of the income.

3. It is necessary to understand values in order to do this careful planning.

4. Budget work makes the study of textiles more practical and interesting.

5. It gives an economic aim to our sewing courses.

6. It will help a girl while she is in high school; it will be useful also if she goes to college, or into the business world; it should be invaluable if she becomes a homemaker.

7. With the increased cost of food, coal, and clothing, families with several children are living under a tremendous strain, such, probably, as they have never experienced before.

If we can do anything to help the mothers solve their problems, or make the girls more contented with what they have, we are giving the community the service which they have a right to expect from us.

MON-DAH-MIN, AND THE RED MAN'S WORLD OLD USES OF
INDIAN CORN AS FOOD

HEN-TOH, WYANDOT

Perhaps more has been written about corn during the past few months than ever before in the world's history. That America taught the world the use of it is an undisputed fact; that it is the one most useful, popular, and productive cereal is as true. One cannot help but wonder that if, when Columbus discovered corn in the Western world, and carried it back to Spain, instead of the wealth of gold that so many of the early discoverers hoped to find and carry back with them, he ever dreamed of the benefit he was bringing to the future generations of his world, and of the wealth of gold that would be acquired by the knowledge and cultivation of the grain which he had found grown by the so-called savages of America.

Scant credit has ever been given the Indians of North America as agriculturists, nevertheless when the first white men came as settlers to the New World, they found the Indians, in their crude way, cultivating corn, beans, pumpkins, and other products. Each of these furnished the tribes of the Eastern part of the country staple articles of food; and there was no settled village but had its fields where these were grown in sufficient quantities to furnish a large part of the winter stores.

That the corn was the most popular of these products with the Red-man, is evidenced by the beautiful legend in their folk-lore of its origin. This tradition, pictured in Mr. Longfellow's *Hiawatha*, has been credited by Mr. Schoolcraft to the Ojibways; yet the same legend with slight variations was current among the traditions and lore of all of the Eastern tribes, dating back perhaps to an age when there were no tribal divisions, but all of the Indians were as one people. I have heard the legend from the lips of old Indians of the Wyandot, Seneca, and Shawnee tribes, during my childhood.

I can recall listening to it and to many other old Indian stories, from the lips of an aged Aunt who lived many years in my mother's family. Her version was as I give it here.

In the very olden times a poor Indian lived with his family in a beautiful part of the country. He was poor indeed, and not only that but he was not a good hunter so he did not have an easy time getting food for his family.

He was a good and kind man, however, and never forgot to be thankful to the Great Spirit for all that he received. This gentle disposition was also shown in his eldest son, who from his earliest childhood had always been most kind and thoughtful to and for everyone.

When the time came that this gentle youth was passing from boyhood to young manhood, it became necessary for him to undergo the ceremony of fasting and seclusion for a period, to know what kind of a spirit would be his guide through life, and to ascertain what would be his vocation.

In the days of early spring, his father built the boy a little lodge in a secluded spot, where he would be in no way disturbed during the sacred rite, and the boy, after preparing himself in the customary manner, went to his quiet lodge and began his fast. For a time during the first days he took long walks through the deep quiet forest and over the hills, watching the early springing grasses and flowers, and wondering about the great power that caused them to grow and develop. Returning to his lonely lodge exhausted in body, he would throw himself down on his rude couch of skins and fall into a deep sleep. His mind, stored with the thoughts of the plants and flowers, would bring to him pleasant dreams of them; until his one thought was that his guardian Spirit might be one that would bring to his people something that would be a greater blessing than was hitherto known to them; something that would make it easier for them to procure food than by hunting and fishing. Surely the Great Spirit would allow them this blessing.

On the third day he was weak and faint, and while lying on his couch he fancied that he saw a handsome youth about his own age coming slowly towards him from the distance. This youth was gaily dressed in lightly flowing garments of many shades of green; on his head he wore a feathery plume of pale yellow and every movement that he made was easy and graceful. He quietly entered the door of the boy's lodge and stood smiling before him saying:

"I come to you, my friend, from the Great Spirit who has made all things. He knows that you desire not to become a great warrior, and so win praise, but that you long to bring about some greater blessing to all of your people. I am sent to instruct you how your wish can be realized." He then told the boy to arise and wrestle with him, for it was only by such means that his wish might be gained. The boy felt that his fasting had weakened him; yet his courage was so great that he arose and determined to conquer his handsome opponent. The trial began and when the

boy was nearly exhausted and felt that he must fail, the stranger said: "My friend, 'tis enough now, I will come again to try you tomorrow." Smilingly he passed out of the lodge, and seemed to fade away into the air.

At the same hour on the following day, the youth came again to renew the trial. The boy felt that he was weaker than the day before; yet his courage again arose even stronger, and he wrestled manfully to the point of exhaustion, when again the stranger gently told him to desist, adding: "My friend, tomorrow will be your last real trial. Be strong, for it is only thus that you can overcome me and obtain your desire."

On the third day, the stranger appeared at the same hour, and once more the struggle was renewed. The poor boy was very faint with weakness, and again his courage flamed to greatness and he exerted every power, determined more than ever to win the contest or to perish. At last the handsome stranger ceased his efforts and said that he was conquered. Seating himself beside the boy he began telling him what he must do to receive the advantages of his victory.

He said: "You have wrestled manfully, my friend, and have gained your wish from the Great Spirit. Tomorrow I shall meet and wrestle with you for the last time; and when you have thrown me down, you will strip me of my beautiful garments. You must clear this spot of weeds and grasses, make the earth soft and bury me beneath the soft clean soil. Leave me there and do not disturb me, but come often to see if I have yet come to life. Be very careful not to let the weeds and grasses grow upon my grave, and every few weeks dig up the soft dirt above me and put over me another covering of the soft earth. If you do all this, you will obtain your wish to do good to your fellow creatures."

In the early morning the boy's father came to the lodge bringing a small bowl of food, saying: "My son, your fast has been as long as custom requires. If the Great Spirit is to grant your desires he will do it now. Seven days have passed since you have taken food, and the Master of Life does not ask that you sacrifice your life."

"My father," the boy replied, "wait until the sun is there," and he pointed to the western horizon. "I must extend my fast to that hour."

"Very well," sorrowfully returned the old man, "I shall wait until that hour comes and will return."

At the usual hour, the stranger came, and the wrestling was renewed. The boy had not taken any of the food his father had brought; yet he felt that new and mighty strength had been given to him. He grasped

his supernatural antagonist, threw him down and took from him his beautiful garments of green, and his yellow plume. Finding him dead, he buried his body at once on the spot, being very careful to observe each and all of the instructions that had been given to him. He felt assured that his friend would again come to life.

Then he returned to his father's lodge and ate lightly of the food that was at once placed before him.

Never for a moment did he forget the grave of his friend; but visited it often and kept the weeds and grasses from growing on it. One day late in the summer when his father had returned from a hunting trip, he asked him to go with him to the scene of his fast. In the midst of the spot where the boy had buried his friend there was growing a stately and beautiful plant with nodding plumes, broad and graceful leaves, and clusters of grain on each side.

The boy pointed to it and said: "Oh my father! See, this is my friend, and the friend of all of our people. It is Mon-dah-min. Henceforth we will not need to depend on the chase alone for our food, for as long as this gift is cared for, the earth alone will give us food. This, oh my father, is what I fasted for and the Great Spirit has heard my voice and given to us this new blessing."

Gathering some of the ears, the father and son took them to their lodge, and the whole family joined in a feast of the new-grown ears of corn, not forgetting to thank the Great Spirit for the treasure that had been given them. It was in this way that corn came into the world.

Tradition says further that this first corn was the red, white, and blue-grained flour corn, or as it has been called, "squaw-corn," and this even today is the most highly prized. For generations the seed has been preserved, and its uses as food have been handed down. Go into any Indian country, and you will most certainly find it in use.

The popularity of corn among the Indians is shown by the many different ways in which all of the various tribes prepare it for food. Many of such methods of preparation, long used by the Indians and handed down and taught from one generation to another within the tribes, have never become widely and popularly known. Some of these were almost universally used while others were peculiar only to certain tribes.

Any written recipe for the making of, as they are called in the Wyandot tongue, Tohn-tah, Eh-shren-tih, Skeh-anh, Neh-hen-tah-wih, and Teh, yes, and No-muh-shren-dah-tah-rah, is something strange to think of; yet each of these unpronounceable names designate a separate and dis-

tinct preparation of food made from the Indian corn, that has been well known and relished by all of the Eastern tribes and their descendants for ages past. The method of preparation in each tribe is the same, yet each tribe gives the product a name in its own language or dialect. Among the remnants of the Wyandot, Shawnee, Seneca, Ottawa, Peoria, Miami, Quapaw, and Delaware tribes, as well as many others, some or all of these products are yet made, and prove to be the most substantial of their winter stores. Among many families with only a mere trace of Indian blood these products are considered of the choicest, and no field or garden is without its squaw-corn patch for the making of these most palatable dishes, and the white settlers living among the Indians are always anxious to secure a supply of these Indian products.

All of them are what would be generally termed, "dried corn;" yet the different way in which each one is prepared and then cooked for the table, makes it quite a distinctive dish. In all probability, *Neh-hen-tah-wih* is the most popular. It is made in this way. The blue and red squaw-corn is taken when in roasting-ear, and roasted over hot coals until the milk is cooked, the grains being slightly parched. Care must be taken not to scorch or burn them. The time honored way of roasting corn, among the Indians, was to dig a trench about a foot in depth, and from eight to ten feet long. A fire of green and dry logs was made in this trench, and allowed to burn down to a good bed of hot and glowing coals. The roasting-ears were gathered and husked, and the long stems or shanks left on the ears. A forked stick was driven in the ground at each end of the trench, and a green pole placed across. Along each side of this pole, with their ends resting on the ground were placed the ears of corn, and when the side of the ear just over the hot coals was roasted, a turn of the ear was made, and the other side roasted. This is not an easy task by any means; but is on the contrary, well termed in the present day vernacular, "a hot job." My brother and I when making the winter's supply last season, found it much easier to stretch a strip of chicken wire over the trench of coals, and lay the ears on this. When the corn is all roasted and the ears have cooled, the grains are shelled from the cobs with a spoon or a knife, and are then thoroughly dried either in the sun or in a dryer, and put away in sacks for winter use. The sacks of corn should be put out in the sun for a time every few days, for a month or more after it is made. This drives away any moisture that might cause the corn to mould.

When Neh-hen-tah-wih is to be cooked for the table, two teacups of the dried corn will make enough for a family of five or six. It is put into a kettle of cold water, just after breakfast is over, placed on the fire and allowed to simmer and boil until dinner time. Plenty of water is used, for the soup is the best part, and a ham-bone, a piece of bacon, or of bacon rind, is put into the pot for seasoning. Fresh cracklings cooked with this corn make the best soup that one ever tasted.

After the soup has been eaten there is always the greater part of the corn left in the kettle. This can be warmed over in the kettle for another meal, or can be put into a skillet and, with perhaps a bit of other seasoning, makes another most palatable dish, far more so than ordinary canned corn. Any corn that is still left may be warmed over for several days and is better each time. There is never any of it to be thrown away, unless it should sour when the weather is too warm.

Tohn-tah was one of the principal supplies of the Indian warrior, ages ago, carried in a buckskin pouch at his girdle, when he started forth on the war-path or other long journey. It is usually made from the white flour corn or, as the Indians call it, the "bread-corn." The ripened grains are shelled and parched to a crisp brown. These are then ground in a mortar to a fine meal. Sometimes just a bit of salt was mixed with this, and again a bit of maple sugar. Carried on the trail in a buckskin bag, a small handful of this moistened with a little water, or even eaten dry, made a hurried yet sustaining meal, both palatable and nutritious. Since the war-path and the hunting trail are things of the dimming past, it has been found to be as acceptable as a breakfast food when moistened with thick cream, and perhaps sweetened with sugar.

Eh-shren-tih is what one might call another of the soup corns, and like Neh-hen-tah-wih is always relished by the new-comer who tastes it for the first time. Like Tohn-tah, it is made from the white flour corn. The corn is gathered when the milk has set and the grain is just beginning to harden. The grains are shelled from the cob with a spoon or mussel shell, and are lyed with wood ashes, then spread out on a cloth in the sun and dried. This makes most excellent soup when cooked for several hours and seasoned the same as Neh-hen-tah-wih; and the cooked corn eaten either cold or warmed over in a skillet with more seasoning is far more tasty than the ordinary hominy. In fact it has a distinctive flavor all its own. In lyeing it, one must be careful to wash it in several waters before spreading it out to dry, so that all of the lye and the outside covering of the grain may be removed.

Teh is the hominy made from the small flinty grained Indian corn. The ripened grain is pounded in a wooden mortar very gently, just enough to crack the grains and to remove the outside covering or hull. No little skill is required to wield the wooden pestle just right so that the grains are not pounded too much. It is then winnowed in a basket and is ready for use. It also makes an excellent thickened soup, and may be cooked as the common hominy. It is good when seasoned with ordinary seasonings; or when eaten as porridge with milk or cream.

There is no soup more delicious than that made by the old Indian women from the green bread-corn, seasoned with jerked or dried venison. The grains are cut from the cobs when the corn is in the milk stage, and the milky mass is slowly poured into the cooking soup which is constantly stirred. This was formerly one of the principal dishes of their Green Corn feasts, held as a Thanksgiving by nearly all of the tribes, some time during the month of August.

No-mush-shren-dah-tah-rah, or bread made from green corn is indeed a toothsome morsel. The white bread-corn or even the ordinary white field corn, is taken when in the milk stage, and the tops of the grains are cut with a sharp knife. The milky substance is then scraped from the ears into a pan or bowl; or sometimes, since the ways of civilization have come to the Redman, the green corn is grated on a coarse grater, and, without putting anything whatever in it, the grated corn is poured into a deep baking-pan, to the thickness of an inch and a half to two inches or more and baked in an oven until the crust is a rich brown. This green-corn bread when eaten warm with a little salt and plenty of butter is most delicious. When the pone has become cold it is crumbled and dried in the sun, making Skeh-anh which is put away for winter use when thoroughly dry.

Skeh-anh cooks quickly and an ordinary teacup full put into a skillet with enough water to cover it will soon fill the skillet. It may be seasoned with butter or cream, or with other seasoning. Sometimes just a bit of sugar is put in when cooking; though others prefer seasoning it at the table with salt and pepper. It makes an excellent dish that is relished by nearly everyone that tastes it; and it has been called the Indian breakfast-food.

I believe that the recipes here given for the various uses of Indian corn have never before appeared in print, or perhaps even been written; yet each and all have been in use in many Indian families for generations. Since my earliest childhood, I cannot recall a season when several of these

various ways of preserving Indian corn for food were not used in my mother's family. She always made or had made a good supply of Neh-hen-tah-wih and Skeh-anh, and also Eh-shren-tih; and her daughters and granddaughters have always done the same. There is never a guest who eats at our table, for the first time, some one of these Indian dishes, but relishes it, and asks what it is, how it is made, and wonders why they have never before heard of it. All of the various dishes are wholesome and highly nutritious, and should be more widely known.

PAPER TEXTILES

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Paper textiles are not new, for the Chinese and Japanese, for a century or more, have used paper twine to wrap packages, paper rope for bales and have even made a fine paper yarn for weaving cloth. In the United States, at the time of the Civil War, some mills were established to produce paper twines to supplement the cotton shortage, but only one factory survived the return to normal conditions.

Present Uses of Paper. At the present time we are using paper for many comparatively new purposes, paper towels, milk bottles, roofing, boats, barrels, waterproof covering for walls and ceilings, artificial flowers, furniture, and string and twine. Recently a patent was taken out for a waterproof, collapsible, oiled-paper umbrella for emergency uses, and tests indicate that this will last for months in heavy wind and rain. On the continent sausages appear in paper jackets. In Austria paper lamp wicks are proving very satisfactory. Paper bagging and burlap are successfully used in Europe, even bags for shipping of vegetables. Paper trunks and paper insulators are well known and even a paper chimney has been heard of. Waste paper is being used for modeling after being pounded and kneaded into a pulp.

Paper (or cellulose) treated with zinc chloride is used in the making of gears, manhole rings, horse shoes, gas pipes, cartwheels, tool handles.

The use of paper for textile materials has been known for a good many years in an experimental way in Germany, Sweden, and England. In

1892 Keller and Turk of Germany produced the first commercial paper twisting machine for transforming a paper strip by twisting into a firm cord or yarn. Now paper twisting machines are no longer a novelty; many are available, two of them of American make.

The paper fiber industry has grown rapidly during the last three and one-half years, because of the shortage of the usual textile fibers. In the different countries attention has been paid to developing certain lines of textiles. Japan is using paper for filling in silk ribbons, print cloths, upholstery goods (with cotton warp and paper filling), horse hair cloth substitute, carriage cloth, etc. Japan is making paper shirts which were used last winter on the Russian front. They were found to be warmer and cheaper than the old fashioned shirt, the only disadvantage being that the paper shirt could not be laundered! England is using paper yarns very largely in the manufacture of ropes and twines. Germany is making many textiles for household use and wearing apparel, as well as bags of paper as substitute for hemp and jute. In the United States, the paper furniture, floor coverings, twine, and bagging industries are already of considerable proportions.

In France the paper mills are producing paper yarns which are made into fabrics satisfactory for wearing purposes. They are soft, flexible, water and air tight, antiseptic, and sufficiently durable to make serviceable garments for the soldiers. Vests and plastrons are woven from the twisted paper yarns. They are frequently backed or doubled with cloth to increase the durability. They can be brushed, handled, and folded into small bulk without injury. These paper garments can be varnished to render them waterproof. One mill uses a concentrated solution of gelatin and fats mixed with drying oils which will permeate the fabrics placed in it. The material is then dried and placed in a solution of formaldehyde and eucalyptus oil. It is now an antiseptic, water tight and air tight garment, light in weight, inexpensive, folding compactly, and very warm. The plastron is worn somewhat like a baseball catcher's protector, weighs 2.6 ounces and can be used for about a month. Undoubtedly these paper vests will prove desirable for automobilists, aviators, and sportsmen.

For some time there have been appearing in our technical and trade journals references to articles in German periodicals on the rapidly increasing use of paper fabrics. However, the German articles do not reach this country except in abstracted form and it is difficult to obtain much

definite data, either as to the preparation of these textiles or as to how satisfactory they prove in use.

Poor people in Germany are using paper beds, sheets and pillowcases, and mattresses. The mattresses are made of strong paper toughened by special process, sewed together, and filled with dead leaves. Germany is producing a woven textile of paper and 20 per cent cotton, which is used for the sheets and pillowcases and also for hosiery, gloves, cravats, suspenders, handkerchiefs, scarfs, towels, children's clothes, aprons, purses, tablecloths, napkins, table covers, jerseys, bandages, and horse blankets. Through Amsterdam we hear of the wide use of men's suits of practically no material but paper. However, the cost of production of paper fabrics is sufficient so that there is little probability that they will be able to compete with cotton in normal times.

It is expected paper yarns will soon be requisitioned by the Government for army use and even now consumption is greater than that possible for the mills to furnish.

German uniforms from the trenches which were sent to England in November, 1917, for analysis showed 8 per cent of animal fibre, part of which was identified as mohair (from Turkey), with the balance made up of paper yarn, a good proportion of flax and a smaller percentage of cotton. This is considered as military information and full data is not available.

References have appeared to very good looking white skirts and shirts for sale by German merchants which after one trip to the laundry are a soggy mass of paper pulp. These appear to be woven fabrics.

Paper belting has been used for light motors. It is woven of paper cord and is of a matting texture but the abrasion of this material is greater than with leather and the durability is much less.

Other uses of paper have resulted from shortage produced by war conditions. In Germany, in place of cotton as a basis of high explosives, they are using chemical pulp made from cellulose (wood, spinning waste or rags, etc.) treated with caustic soda or a sulfite.

At least one German surgeon is using successfully, for dressings and absorbents, such products as cellulose wadding, wood wool and felt, instead of linen and cotton. A Pittsburgh surgeon has experimented extensively with medicated paper, and has found it to be very effective. In addition to solving the gauze shortage, the use of paper for dressings reduces the cost more than 25 per cent.

Manufacturing Processes, Impregnating Solutions. Raw materials for paper yarns are wood cellulose (sawdust), old paper, rags, rope, and the

spinning waste from cotton, jute, flax, and hemp industries. Germany is getting much of her cellulose from pine and cyprus. Since paper board is being made from waste sugar, sugar cane, and corn stalks, probably other waste products will come into use. It is interesting to see the number of materials suggested in the current literature as sources of cellulose, such as many tropical plants, while a corporation has recently been organized in Texas for making paper from corn stalks. Many patents are being taken out for sources of cellulose.

The paper stock is delivered in large rolls 2 to 5 feet long which may weigh as much as 700 pounds to the roll. These are cut into strips $\frac{1}{8}$ inch to 4 or 5 inches in width, wound into solid discs of the same thickness as the large roll. These smaller rolls are then stored in a humidifying room for three or four days.

Different grades of paper are employed, two American mills using tissue paper entirely and another a very cheap grade which until recently it was not thought could be twisted.

The next process is that of twisting, which must be done very carefully. Tissue or thin paper can be twisted either dry or moist but heavy paper must be moist, to give greater pliability. There are a good many problems in this part of the process; for instance, the tension must be watched with a microscope and too much moisture will impair the strength of the yarn. After being twisted the paper strip has increased breaking strength; those tested by Heinke gave a tensile strength five or six times that of the original paper strip.

A good many modifications are used in the twisting process. Often paper is twisted over jute and cotton, covering up loosely spun threads and preventing raveling. Metal wire used in the manufacture of the fibre furniture is covered in the same way.

There are a number of machines in Germany for covering thread and wire by spinning paper yarn over some such foundation. Generally the same machines are used for the weaving of yarn into fabric for paper fabrics as for cloth fabrics.

In the moistening before twisting, water sprays are used, or the strips may be passed through the froth of a solution containing a lathering agent, such as saponin in admixture with soap.

A high tensile strength is difficult to attain in these fabrics on account of the short paper fibre, and after treatment is necessary, such as impregnation to increase strength and resistance to moisture. Generally the dressing contains starch, wax and oil, may contain glue and paraffin, or

rosin, or waterglass, and now one manufacturer is using a viscose coating. The viscose adds strength but the waterproofing quality is questionable. Other ingredients used are aluminium acetate, gelatin mixed with aluminium acetate, gelatin and formaldehyde, tannin solution, tannin and gelatin. Some of these are more or less satisfactory. One solution which is in use and has proved particularly satisfactory for finer yarns is the following: first a bath of glue, tannin, and sodium silicate at 50°C., passage, without drying, through a second bath of basic aluminium formate, and drying. The result from this treatment is a 10 per cent increase in strength in the dry state and an increase of 30 per cent in the wet state.

The water proofing solutions have not yet been entirely satisfactorily worked out. Those used on heavier fabrics such as the rugs, which can be washed without friction, seem to be giving good service but there is still much to be done in this line of research.

Fire proofing solutions are used on paper, some containing as their chief ingredient sodium aluminium carbonate. A starch mixture for fireproofing paper yarns and textiles uses acetyl arabin, corn starch, borax, aluminium sulfite, sodium silicate, ammonium acid carbonate, and white wax.

The dyeing of paper textiles is done in the same way and with the same dyes as in dyeing of cotton except that material of paper when in the wet condition must be handled much more carefully.

The testing of paper fabrics does not seem to have received much attention in this country. A magazine published in Austria describes methods of testing in use in one laboratory as being much the same as for cloth fabrics. The yarn tests are for twist, yarn number, stretch and breaking strength of yarns; the fabric tests, for thread count of warp and weft, yarn number, moisture, weight per yard, stretch and breaking strength in warp and weft directions in (1) natural condition, (2) bone dry, and (3) after twenty-four hours in water. No mention was made of microscopical examination to determine the kind of fibre and condition of same.

An interesting item in the testing of paper fabrics is the amount of moisture held by them. Many contain about 38 per cent when they leave the factory. However, with none of these tests have standards been established as yet.

The American Paper Fibre Rug. The American paper rug, or so-called fibre rug, is already in extensive use. Carpets are going up in price. They are expensive at best and when cheapened durability and quality are

sacrificed. The cheapness of the paper fibre rugs is due to the simplicity of the manufacturing processes and because they are made from cheap and easily available material.

There are three distinct varieties, cotton warp with paper filling threads, cotton or hemp warp with paper and wool filling and the rugs composed entirely of paper yarns. These are woven on a carpet loom, run through a size box containing the mixture for stiffening and setting colors, run over several steam calenders to dry and flatten and the finished rug is ready for the market.

This type of floor covering cleans easily, is sanitary, odorless, and will wear well. In 1916 there were twenty-five factories in the United States making fibre rugs, one with a daily output of twenty-five tons.

The Future of Paper Textiles. There are possible chances for substitution of paper for hemp and cotton because of particular adaptability in certain instances, such as the use of paper twines instead of hemp for the tying of wool, for paper will dissolve and be thrown out in the manufacturing processes whereas hemp will carry through and contaminate the product. Something of the same is true in the meat and tobacco packing industries. But paper textiles are bulky. The hard twisted paper yarns can compete with vegetable fibers in strength but they are about twice as large. When the materials are available the American public can buy linen towels, silk shirts, cotton sheets and pillowcases. There seems to be no reason for substitution of paper where cotton is as available as in this country in normal times, but rugs, furniture, and to a limited extent cords and binding twines have won a place which will last after the unusual market conditions incident to the war have passed.

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COLLEGE STUDENTS' ACCOUNTS

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In the Household Science and Arts work at Pratt Institute we require every junior normal and every institutional household science student to take a course in household administration. Part of the work of this course is the keeping of a personal expense account. For this purpose we used for several years, with more or less satisfaction, a classified expense account book. Any form of accounting which is properly done is necessarily good training for any student—but, nevertheless, we have decided that some other form of account keeping would be more advisable. In the one book on the market that seemed best suited to our use there is not enough room for itemizing, although the classification is good.

For this reason our students are now keeping their accounts on cards with a definite classification and many headings of which they may use for their accounts as many as they see fit. We believe that this form of account keeping will be of very definite use not only in helping a girl to classify her accounts but also in giving her training in classification in general. Anything which will tend to make a student analyze her work, no matter what the subject, must have a very great value. The difficulty with so many students is that they cannot separate the big things from the little, the important from the less important, and subordinate the lesser as they should. Given a general idea of classification of accounts, they will have to make up their minds where the items belong and it will be possible for the instructor to see readily whether they show judgment in their classifying and itemizing.

The figures in table I were compiled and averaged from expense account books kept during 1913–1916. From these accounts it is evident that the expenses of the students remained practically stationary; for the differences in amounts are explained by the facts that the 1913–1914 account is for twelve months, the 1915–1916 for nine months. The differences are chiefly under the headings clothing, carfare, and recreation: the increase in clothing due to the amount spent during the summer in preparation for returning to school in the fall, that in carfares largely to the fare to school in the fall, and that in recreation to summer vacations.

TABLE 1

Comparative expenditures of boarding students for two periods.

	SEPTEMBER, 1915 TO JUNE, 1916 (NINE MONTHS)	SEPTEMBER, 1913 TO SEPTEMBER, 1914 (TWELVE MONTHS)
Rent.....	\$101.07	\$105.21
Food.....	121.43	120.96
Clothing.....	70.68	115.42
Laundry.....	7.62	8.11
Car fare.....	23.27	49.65
Health.....	11.25	11.78
Recreation.....	4.40	14.17
Education.....	153.11	130.22
Stamps and stationery.....	11.17	9.11
Church and charity.....	18.99	20.49
Incidentals.....	4.89	6.08
Totals.....	\$527.88	\$606.22

TABLE 2

Average expenditures of students doing coöperative housekeeping.

	1913-1914 (NINE MONTHS)	1915-1916 (NINE MONTHS)
Rent.....	\$60.61	\$90.00
Food.....	66.34	90.11
Clothing.....	70.90	74.91
Laundry.....	10.01	.79
Car fare.....	18.68	30.36
Health.....	22.74	.40
Stamps and stationery.....	15.52	4.65
Recreation.....	17.74	3.43
Education.....	133.11	142.72
Gifts, church, and charity.....	19.17	15.31
Incidentals.....	20.24	.15
Totals.....	\$454.71	\$452.83

The cost of education for 1915-1916 is \$153.11, and for 1913-1914 it is \$130.22, but the figures for 1915-1916 include the expense accounts of the household arts students who have to buy materials for dress-making, design, and handwork. This might be balanced by a decreased yearly cost of clothing. In keeping our accounts the question arose whether materials for classwork in dressmaking should be classified under clothes or education. It has seemed at times better to classify them under education, for a student must purchase these things

in order to do her work and she must plan for that expenditure even if the articles of clothing which she makes would not ordinarily constitute part of her wardrobe.

Few of our students do coöperative housekeeping, but from the figures in table 2 it is obvious that it is an extremely economical mode of living. The low cost for laundry in all cases is due mainly to the fact that the majority of our students send their laundry home.

For the card system we have made out the following classification, which the individual student may modify for her particular needs.

CLASSIFICATION OF HOUSEHOLD ACCOUNTS

Allowances (children)	Fuel
Care of house	Gifts (personal)
Outside	Gifts (church—charity)
Inside	Health
Furnishings (permanent)	Interest on debts
Furnishings (not permanent)	Laundry
Flowers	Light
Clothing and accessories	Postage
Coats and wraps	Professional (or business)
Gowns	obligations
Hats	Reading
Jewelry	Recreation
Repair	Rent
Shoes	Savings
Underwear	Service
Education	Stationery
Entertainment	Taxes
Express, freight	Telephone, telegram
Food	Toilet
Bread	Transportation
Dairy products	Carfare
Dry groceries	Other
Fruit	—
Ice	
Meat	
Vegetables	Income
Outside home	Summary
Garbage disposal	Balance

CLASSIFICATION OF STUDENT'S EXPENDITURES

Church and Charity	Handwork
Clothing	Design
Dressmaking class supplies	Houseplanning
Accessories	Health
Blouses	Interest
Coats	Laundry
Dresses	Reading
Hats	Recreation
Jewelry	Rent
Shoes	Carfare
Underwear	Savings and insurance
Education	Stamps and stationery
Tuition	Telephone
Books	Toilet
Stationery	Transportation
Entertainment	Car, boat, railroad
Food	—
Board	Income
Food other than regular board	Summary
Gifts	Balance

HOW COÖPERATION IS BEING APPLIED IN A FAR WESTERN UNIVERSITY

JESSIE B. ROTHGEB

Department of Home Economics, University of Washington

In the Pacific Coast States the principle of coöperation, in existence in this country for years, has been put into successful practice. This is brought out very clearly in a study of the coöperative marketing and canning industries among the fruit growers and farmers. In 1912 the Washington State Horticultural Association organized the fruit growers of Oregon, Idaho, Montana, and Washington into districts for the inspection, grading and packing of their products. It improved marketing conditions, and enabled the growers to secure a fair price, where previously marketing of the crop had been speculation.

The California Fruit Growers Association Society (coöperative) has 4000 growers. The society handles 60 per cent of the citrus output, and also a large per cent of the other fruits grown in the State of California. The Association among other accomplishments has obtained a reduction of freight rates to the East, and an increase in the tariff on lemons. They have expended fifty thousand dollars in national advertising.

The principle of coöperation is observed in our western universities. At the University of Washington the sororities and fraternities have been seriously considering methods of coöperative buying, storing, and distribution of food supplies. Plans and methods have been drafted, and undoubtedly would be in practice at the present time, were it not for the unsettled conditions of our markets due to the war.

The spirit of coöperation is being applied in our University cafeteria. This institution is not run for profit, but meals are served at cost to the students and the faculty members. The cafeteria feeds an average of four hundred students and faculty members each day.

"Let Us Help You Choose Your Food" was the title of a folder recently published for the benefit of our patrons. Cafeteria managers realize that people who eat in public places find it hard to select the proper food. The folder suggested combinations of food which helped the students to select well balanced meals. During the year 1916-1917 the student patron spent an average of fourteen cents for breakfast, nineteen cents for lunch, and twenty-three cents for dinner. The next year the average increased only about three cents per person for each meal.

At the cafeteria we have not only observed the fifty-fifty wheat regulation, but have eliminated wheat entirely, which meant the doing away with yeast breads, leaving in their place hot breads, cakes, and pastries. This, however, was not undertaken until we had placed the matter before our patrons in a voting contest. The returns showed 360 votes in favor of the wheatless diet and two against it; 147 showed no interest.

The spirit of coöperation exists all through the University activities. Each spring a day is set aside as "Campus Day," and professors, as well as students, don working clothes and labor together improving and building up the campus. Last spring seventeen hundred took part, and the problem of feeding this crowd fell to the girls who commandeered the cafeteria, and served 3000 sandwiches, 560 pounds of potato salad, 68 gallons of beans, and 67 gallons of coffee.

THE INTERNATIONAL SCIENTIFIC COMMITTEE

At the session of the Inter-Allied Conference held in Paris in November, 1917, an International Scientific Committee was appointed, to consider the food problems of the Allies and make recommendations to the different allied governments. The committee consists of two members from France, Italy, the United Kingdom, and the United States, respectively, and one from Belgium.

The representatives of the United States are Professor Graham Lusk and Professor Chittenden, and among the others are names almost as well known to food experts in this country. Professor Starling who represented England, and Professor Gley, one of the representatives of France, are honorary members of the American Home Economics Association.

The committee met in Paris on March 25, and in Rome on April 29. The part of their work in which Home Economics is especially interested is their agreement as to the minimum food requirements of the average man. These correspond fairly well with the modification of the Atwater Ration adopted by the United States Department of Agriculture. A man of average weight, doing average work during eight hours a day, requires food that as purchased will yield an energy value of 3300 calories daily. Professor Lusk's figures as to the proportion of this amount to be assigned to women and children of different ages were accepted. While 3300 calories was fixed upon as the desirable amount it was concluded that when it was impossible to supply as much, 10% less might be used for some time without injury to health. The "desirable minimum" ration of fat is given as 75 grams, about $2\frac{5}{8}$ ounces, for an average man per day, an amount somewhat higher than that suggested by the U. S. Food Administration. The opinion was expressed that there is no absolute physiological need for meat, and that therefore it is not desirable to fix a minimum meat ration.

The commission believes that prices should be so fixed that the production of beef and pork and poultry at the expense of food available for man should be discouraged, and that this may be best done by fixing such a price for animal products as will make it unprofitable for the producer to feed them on cereals.

A full report of the conclusions of the Committee is given in the *National Food Journal*, June, 1918.

FOR THE HOMEMAKER

THE HOSTESS HOUSE CAFETERIA

MARION E. HOPKINS

Cafeteria Specialist, War Work Council, National Board, Y. W. C. A.

The table is the social center of most homes; the cafeterias in the hostess houses of the Y. W. C. A. are important social centers at the soldier camps.

The hostess houses are for the soldiers and their visiting families and friends. Those abroad are used by the women serving with the American Army: signal service women, telephonists, telegraphers, and clerical assistants. They are built in order that men and women may have a decent place to meet for several hours, make plans for the future, and say good-bye. Three sizes or varieties are built; small ones for the aviation camps, big ones for the embarkation camps, and houses remodeled from those already on the lands where the camps are located. If the house does not prove large enough to accommodate the visitors who have come to camps in numbers as great as 12,000 in one day, a new house is erected. Some of the camps now have three houses. Thirteen are for colored troops. There are ninety-one in all, including those abroad, and calls for more are coming from the War Department every day.

The cafeteria is no small part of the hostess house for it feeds, as a rule, between one thousand to two thousand soldiers and visitors on Sundays, and varying numbers on other days. The boys who have no visitors like to come to the hostess house and eat, not only because the food is "so good," but because they can be "where there are folks like home folks," a need greatly felt by the homesick soldier boy away from family life for the first time.

The woman who is hostess of the cafeteria needs to be a resourceful person. Hers is not the simple problem of manager of a school lunch room, or a cafeteria for a business firm where stated hours can be adhered to rigidly and where she can calculate ahead for a week or more to a person how many guests to expect each day. She must be a level

headed woman who can meet any emergency, from doing big work in little space to meeting an unexpected embargo of visitors at camp which will mean that no guests will come for some days.

One cafeteria manager described a typical day as follows: "It was but an ordinary day, not a special day in any sense. It had begun with breakfast served to the several who depended upon the hostess house cafeteria for good meals. The first call for food was from a foreigner, who was just out of the hospital and unable to report for duty, and who had come to enjoy the fire.

"At the same time a young girl was being made welcome. She had come in that morning on an early train, and had found that her fiancé was in the hospital, making it necessary for some one else to see that she was cared for.

"A newly arrived private, suffering from the typhoid fever serum came in for toast, egg, and coffee, and sat before the fire for a while before and after his meal.

"Noon lunch was served to 1200 visitors. Supper was served in time for those who desired to get away on the six-thirty train."

What people usually call emergencies belong to the regular work of the day of the cafeteria hostess. The houses abroad have these, as well as those at home. The cafeteria hostess at Paris was called out of bed by an excited maid early one morning with the message that a ship load of Red Cross workers had arrived and needed breakfast. Of course they got their breakfast.

One cafeteria was called upon suddenly to make four thousand sandwiches to feed a visiting delegation. Some of the demands are less strenuous. One morning a Tommy entered the office of the Paris hotel for American women war workers about 8.30 a.m., clicked his heels together and holding out a little tin-pail, asked in a very cockney English, "Can you give me any tea 'ere?" What he did with it, no one knew, but he must have made a funny picture walking along the streets of Paris with his little tin-pail of steaming hot tea. French men, in spite of there being no wine or beer, often come to the hostess house cafeteria to get a "good square meal."

Both in this country and abroad visitors and soldiers come who have never eaten at a cafeteria and do the funny things that the uninitediated so often do. One hostess had carefully selected her own dinner from the counter and set her tray down when an officer stepped up,

picked up the tray, received the check and ate the dinner, probably thinking the hostesses were there to select the meals for them.

The hostess houses have large verandas where the families of the soldier can eat the basket lunch brought from home, supplemented, if desired, with coffee and other things from the cafeteria. Thus the boy may share the birthday cake brought from home, or his favorite fried chicken.

The meals at the cafeteria vary somewhat, but usually consist of a hot meat, potatoes and some vegetables, salads, and desserts. The following is a sample menu:

Roast lamb, .20; potato cakes, .10; creamed carrots and peas, .10; macaroni and cheese, .15; 4 or 5 salads, each, .10; ham sandwiches, .10; American and cream cheese sandwiches, .15; cake (3 kinds), .10; pie, .10; cantaloupe or watermelon, .10; peaches—3 for .10; tea, coffee, or milk, .05; soft drink, .05; ice cream .10.

The cafeteria is regulated by the sanitary rules for the army kitchens. It is the duty of the cafeteria hostess to see that they are followed. Immaculate cleanliness must be maintained. The help varies from all colored men in some camps, or all women in others to men and women or soldier's wives and volunteer workers. The larger cafeterias employ as many as thirty-eight persons on busy days. All this help usually has to be trained by the cafeteria hostess. In training ignorant workers or unskilled volunteers, the hostess is doing more than feeding soldiers and their friends. She is teaching the preparation of food, sanitation, and personal cleanliness to many who are working with her. Volunteer helpers come from near-by towns, often by turns, one town to the east of the camp sending seven volunteers on Monday, and another to the south-west fifteen on Tuesday. On Wednesday the workers from the town may be back with a few new recruits to fill the places of two or three who are unable to return, making it necessary for the hostess to train new workers every day. Her success depends to a considerable extent upon her ability to secure and train help which is often very difficult to find. To obtain food is another big problem, as the camps are often located a considerable distance from railroad centers. For example, one camp is twenty miles from one city and forty miles from another, and 100 gallons of ice cream are needed at the cafeteria. The hostess could not get it in sufficient quantities from the nearer city, so she had to arrange to get it from the other. The Y. M. C. A. owns trucks to deliver supplies to the hostess houses and this helps to some extent.

The women who have charge of these cafeterias are as a rule home economics trained people. Needless to say, it is difficult to secure women with the necessary qualifications of resourcefulness, level headedness, tact, business ability, and knowledge of their work, but the work goes on steadily in Government camps and is increasing every week.

CONSERVATION OF TIN

There are only about 120,000 tons of tin produced in the world each year. We always connect tin with Cornwall where mines have existed since the time of the Phoenicians, but these are no longer very important. Most of our tin comes from Southeastern Asia, the Dutch East Indies, and the Strait settlements, and is controlled by the English or the Dutch. Practically no tin is produced in this country. About 100 tons came from Alaska last year. In California a mine that has been operated for 30 years has produced altogether only 150 tons.

There seems no way of increasing to any extent the amount of tin available, and its use has increased greatly. Before the war the United States used each year 4500 tons. Now we need 90,000 tons. England needs more as well. Probably Germany is not getting any tin today.

Tin finds its especial use because of its durability, the fact that it melts at a low temperature, that it is not easily affected by acids, and that it can be easily worked. It is used in the manufacture of tin plate, sheets of steel coated with a very thin layer of tin, $1\frac{1}{2}$ pounds of tin being used for every 100 pounds of plate. This tin plate is used for tin cans, for roofing, for fire doors, for household utensils, and in many other ways. The second use of tin is in the manufacture of alloys for bearing metals and solder. There are many other uses that seem small in themselves but that amount to a good deal in the aggregate. Tin foil for wrapping cheese, chewing gum, candy, or tobacco uses a considerable amount of pure tin, and so does the manufacture of tubes for tooth paste, library paste, and similar articles.

Tin enters into the manufacture of white enamel for bath tubs and cooking utensils. It is used, too, to make silk glossy and in other ways in its manufacture.

The increased demand is largely for tin cans for preserving foods, and for the solder and bearing metals required for engine and motor and auto.

In 1914 the price of tin was 30 cents a pound. This summer it averaged 90 cents and had risen as high as \$1.30. The real difficulty though is not so much the price as the lack of tin. The manufacturer is doing his best to save it in small as well as large ways. In making the collapsible tin tube, for example, an appreciable amount is saved by making the neck and the cap smaller and having one less fold at the bottom. The tubes are not quite as good but no one who knows the reason for the change will complain of them. Much of the tin foil used for wrapping has been for ornament only, as in the case of candies. It is now used only when necessary, and other kinds of foil will be substituted when the article to be wrapped is not food. Thirty per cent less tin may be used in silk manufacture by eliminating some of the colors requiring it and by making the silk less glossy.

Tea and coffee and other articles of food will be sold in non-metal containers except when the metal is essential to the preservation of the food. Containers are to be of few sizes. Evaporated milk, for example, will be marketed in only 14 and 15 ounce cans instead of in four sizes as formerly. Cocoa and chocolate will be put up in packages not smaller than half a pound, or in packages of 1, 5, 10, 25, 50, or 100 pounds, and in general all odd and small sizes of containers will be eliminated.

Tin is to be salvaged as far as possible.

Everyone is asked to save tooth paste tubes, tin foil, and any other pure tin material that comes into their possession, and donate it to the nearest Red Cross center. Scrap tin from the manufacture of tin cans, that used to be thrown away, is now collected and sent to the detinning plants, and the steel sent to the steel mills.

Many have asked why old tin cans are not collected. The difficulty in their re-use is mainly one of transportation. The cans would need to be cleaned, crushed to save space, detinned, and the solder taken out, because there must be no trace of lead in the material sent to the steel mills, and so far no practical method has been devised.

Meanwhile the using over again of any cans in the household will help just so much.

FIVE FILTHY FINGERS

Did you ever make a diary of your fingers? Did you ever set down in cold black and white the things your fingers touch every day, and did you ever consider the number of times daily that your unwashed fingers seek your mouth?

When surgeons discovered that it was their own infected fingers which carried germs into wounds they set about trying to discover a means whereby their hands could be rendered surgically clean, *i.e.*, free from germs. The whole realm of chemistry was ransacked for agents which would disinfect hands, and the scrubbing and immersions to which they subjected their hands are even yet a tender memory to the surgeons of that period. But all of these efforts proved useless, and at last in despair surgeons took to wearing rubber gloves which could be boiled, thus bringing to each patient, as it were, a fresh pair of sterile hands. In other words, try as you will you cannot by any known method make your hands absolutely clean.

The great agent in the spread of those diseases whose causative organism is present in the secretions of the mouth and nose is the human hand; and if saliva was bright green we would be amazed at the color of our fingers. As a matter of fact, most of us carry our fingers to our mouth or nose many times daily, there to implant the germs of disease which other careless people have spread about; there to collect a fresh cargo of infectious material to scatter for somebody else.

It is true that most germs of disease die quickly once they leave the human body, but what does the death of a few billion germs matter so long as the supply is copious and never-ending.

What an enormous number of infected things we touch during the day, and how infrequent and cursory are the hand washings we perform.

The answer is to keep your fingers out of your mouth and nose. Thus we limit the spread of disease from these orifices at least; thus we eliminate the danger of contracting disease from some one else who was not quite so careful.—*Mass. Public Health Bulletin, June 1918.*

When we add to what has been said above the serious possibilities of filth and infection from hands unwashed, or only partly washed, after being soiled in the toilet, the importance of clean hands is evident.—EDITOR.

A GAS MASQUE

Here is a suggestion from the Food Administration that might apply to an impromptu day at a woman's club, or to a school play as well as to the more elaborate harvest festival, or pageant.

Why not arrange a gay masque done in the Elizabethan style—admission nut shells or fruit pits? Call it "A Gas Masque" and let the town crier advertise it so loudly that every fruit pit and nut shell will be turned in. For such a masque fruits and nuts and the season give the setting. A quarrel between the Perishables ("Peaches," "Nutty Nuts," etc.) and the Staples (Wheat—Meat—Fat—Sugar) suggest the argument. Perishables, claiming unjust discriminations at the hands of War Industries, and Shipping Boards, and the Food and Fuel Administrations, lay their case before Jupiter. He is impressed with the beauty of the Fruits and the wit of the Nuts, but knows only too well that the Sons of Mars fight on meat and bread. In the midst of the Olympian clamor Mercury arrives with an imperative call for nut-shells and pits, and the Fruits and Nuts are vindicated as War-Essentials.

For the arrangement of masques and harvest festivals consult Master William Shakespear's "Tempest" and "As You Like It." This is only a suggestion to start your wits working.

MIXED FLOUR

Many housekeepers will be glad when the new mixed flours come generally on the market. They have been delayed by the making of new labels and by some difficulties in regard to the mixed flour law. Soon, however, they will be on sale in even greater quantities than wheat flour. There will be little difficulty in substituting them for the wheat flour that we used "before the war." The mixture with corn flour, for example, will differ very little from pastry flour, or soft wheat flour, in its use. The Victory flours will be:

Mixed Wheat and Barley Flour. Mixed in proportion of four pounds of wheat flour to one pound of barley flour.

Mixed Wheat and Corn Flour. Mixed in proportion of four pounds of wheat flour to one pound of corn flour.

Mixed Wheat, Barley and Corn Flour. Mixed in proportion of eight pounds of wheat flour to one pound barley and one pound of corn flour.

Mixed Wheat and Rye Flour. Mixed in proportion of three pounds of wheat flour and not less than two pounds of rye flour.

Whole Wheat, Entire Wheat or Graham Flour or Meal which contain at least 95 per cent of the wheat berry will also be classed as Victory Flours.

If the housewife desires to buy straight wheat flour instead of any of these mixed flours, she must buy at the same time one pound of wheat substitutes for every four pounds of wheat flour that she buys. Usually the wheat substitutes offered her will be corn flour, corn meal, and barley flour. In some localities, however, where other substitutes are plentiful the housewife may extend her choice to include feterita flour and meals, rice flour, oat flour, kaffir flour, milo flour, peanut flour, bean flour, potato flour, sweet potato flour, buckwheat flour. If she buys these she must buy them in the same ratio, that is, one pound of substitute flour to four pounds of wheat flour. Rye will be sold in the proportion of 2 pounds of rye to 3 pounds of wheat flour.

The use of corn bread and other quick breads that consist of not more than 50 per cent wheat is urged, to effect a further saving of wheat than would be possible if the eighty-twenty yeast bread were relied on for every meal. Cookies, cakes, and pastry may be made from the new eighty-twenty blended flour. This may also be used to thicken sauces, soups, and gravies.

It is to be remembered that we are to use all bread-stuffs with the greatest care, for though the crop of wheat is large some other crops are not so plentiful, and we must build up reserves against such disaster as nearly overtook us last fall.

The victory bread that we are using will be so far as possible the same as that used by the 120,000,000 of the Allies. We want to share in their conservation and use this no more freely than can they.

THE WILD CRABAPPLE FOR JELLY MAKING

KATHARINE MARTINDALE

This article was received too late to be of service this fall but it may help in making plans for next year. Many have been accustomed to breaking off freely in the spring the branches of blossoms of the wild crabapple, and this should not be done if the fruit can all be used.—EDITOR.

This crabapple with the beautiful salmon pink blossoms and the small, green, sweet-smelling fruit abounds in certain parts of the middle western woods—in Wisconsin, Illinois, and Indiana, particularly. Upon a rather extended inquiry I find that relatively few housekeepers know the value of this fruit, and great quantities go to waste each year.

The apples are considered to be better if allowed to mellow slightly by lying on the ground for a few days at least, after falling. Because of a sticky substance coating them it is necessary to clean them carefully using a brush or cloth if desired. In other respects the jelly making process is similar to that used with any other good jelly apple. After cutting them in small pieces, since they are quite hard, cover well with water. Two or three extractions can be made, since there is sufficient pectin and acid present for this. It is desirable to combine the second and third extractions in making the jelly. Sugar in the proportion of three-fourths of a cup to one of the juice should be used.

The jelly is a clear red amber and has a slight characteristic acid taste which is especially delicious with meats and with vegetables.

FAT AND CALORIES

Changing our food customs is difficult because it means also changing our cooking customs. But many dishes can be made with less fat than we are accustomed to put in or with different kinds from those we have hitherto preferred. Often the fat from frying is left in the pan to be washed out and thrown away. If every cook could say to herself, "Every two drops of fat make a calorie and every calorie counts in the world today," it might seem more worth while to hold the pan a minute and drain out the fat for further use. A thousand calories mean a day's life to a baby.—*Every Day Foods in War Time*, by Mary Swartz Rose.

TABLE OF MEASURES

If a recipe calls for 1 pound (2 cups) of sugar and you use

This measure of sugar	and this measure of liquid sweetener	You are using other sweeten- ers to the extent of
Cups	Cups	Per cent
2	0	0
$1\frac{1}{2}$	$\frac{2}{5}$	25
1	$\frac{4}{5}$	50
$\frac{1}{2}$	$1\frac{1}{3}$	75
0	$1\frac{3}{4}$	100

The resulting product contains the equivalent of one pound of sugar. In substituting by measure, 1 cup of sugar is replaced approximately by $\frac{3}{4}$ cup of the other sweeteners on the basis of total solids (*i.e.*, the sugar and similar substances that are dissolved in the liquid. If the liquid sweetener is glucose or corn syrup, the product will be less sweet than if sugar is used.)

If these substitutions are used in recipes where the amount of liquid used is an important factor, decrease the liquid $\frac{3}{8}$ cup for every pound, or $\frac{1}{4}$ cup for every cup of liquid sweetener used.

—U. S. Food Administration.

It takes 96 level teaspoons, or 48 rounded teaspoons, or 32 heaping teaspoons of sugar to make one pound. There are 96 "half lumps" of sugar in a pound, and 48 cubes of sugar.

The total daily allowance for each person is 6 level teaspoons, or 3 rounded teaspoons, or 2 heaping teaspoons, or 6 half lumps, or 3 cubes. Six level teaspoons is 2 tablespoons.

An ordinary serving of cake, made with a pre-war recipe, might easily contain 1 tablespoon of sugar—half the day's allowance. Do we always remember this?

EDITORIAL

The Need for Nurses. A statement has lately been made in the press that "the nursing needs of the Army have already been met, and that 27,000 nurses have been enrolled by the Red Cross in response to the Surgeon General's request for 25,000 graduate nurses by January 1, 1919." The Surgeon General's office reports that this statement has caused an immediate falling off in the number of inquiries and enrollments and that serious curtailment of the nursing service may result.

The Red Cross has an enrollment of more than 27,000, but not all are available for active service. About 16,000 trained nurses are now on the rolls of the Army Nurse Corps, and 9,000 more are needed by January. July should see 50,000 available, if the sick and wounded soldiers are to be cared for. Nurses should continue to enroll, and young women should enter the Army School of Nursing. This is an opportunity for home economics graduates, whose training should especially qualify them for such work.

The Barrel on the Corner. The majority of people in this country are troubled not by the extent of the demands made upon them "to win the war," but by the fact that they can do so little. They welcome any suggestion of ways in which they can be of the slightest service.

The request to save the dried stones of peaches, plums, prunes, olives, dates, and cherries, and the shells of Brazil and hickory nuts, walnuts and butternuts, and turn them in to the Red Cross to make charcoal for army gas masks, fell upon willing ears. Barrels as depositories appeared in convenient places. Public and private institutions, including hospitals, were asked to join in the campaign. The old-fashioned nutting party was revived. Boy Scouts and Camp Fire Girls began to make collections. In one city a commission merchant received a carload of unsalable peaches. Instead of dumping them, he had his employees remove the stones, and turned in 13 bushels to the Red Cross.

Even "before the war," the use of by-products formed an important element in the profits of manufacturers. Now we are all receiving the best training we have ever had in the utilization of all material. We can never go back to our wasteful ways.

COMMENT AND DISCUSSION

Editor, Journal of Home Economics:

In these days of such unusual interest in food, great care should be taken to avoid publishing statements which will mislead the layman, eager for knowledge. The paper "Dietary Study at Vassar" in your March number is, I believe, such a statement.

Briefly, the figures given are these. In a dietary study at Vassar it was found that the average fuel value of the food for the individual per day was 2698 calories. The average student was 19.4 years old, 5 feet 4 inches high, and weighed 123.9 pounds, and her requirements were estimated as under 2000 calories per day. The student, however, obtained at the Tuck Shops an unknown amount of food in excess of that calculated. From the estimates given in Gephart's paper on the St. Paul school boys, indications in the paper under discussion, and unpublished data on a dietary study conducted by the Carnegie Nutrition Laboratory, 10 per cent of the total calories may be taken as a conservative estimate of the food eaten by students between meals, which would bring the total to 2970 calories per student per day.

Tables were given citing dietary studies from other schools and colleges with much the same figures. The only one of these papers I have seen is that of Gephart, where the large amount of food consumed, 5000 calories (the authors give the number of calories as 4377, which does not include the extras which bring the total up to 5000), is taken to indicate the large requirement of the active growing boy. On the other hand, the authors of the Vassar paper state "We would probably be safe in saying that their requirements vary from 1900 to 2200 calories per day, according to age, size, and activity." The implied conclusion is that the average student grossly overeats.

It is an accepted fact that food consumed and unused as energy is stored as latent energy or body fat. The Vassar student, eating 2970 calories per day and requiring 2200 as the maximum, should be adding to body reserves 770 calories daily, which is equivalent to 81 grams of fat or 2.9 ounces, or 1 pound every 5 or 6 days! There seem to be only two possible logical deductions. Either the student requires more than is calculated or some mistake is made in estimating the food value.

As a loyal Vassar graduate, may I also criticize another statement: "The meals were well balanced?" The authors call attention to the high proportion of fuel value obtained from protein (14.8 per cent),

which is the highest per cent from protein in any of the other schools cited, but which is not higher than the Atwater standard or that found in most dietaries, although it is higher than is now generally considered necessary. No mention is made, however, of the exceedingly high fat content. For a man at moderate work the fat requirement is variously estimated as from 51 to 65 grams daily, or 479.4 to 611 calories in an estimated diet of from 2630 to 3060 calories (Sherman's "Chemistry of Food and Nutrition," new edition, pages 362 and 363). Here we have 1252 calories from fat in a total of 2698 calories (46 per cent).

While, if the individual digestion does not protest and economy in diet is no object, fat may be used in excess of carbohydrate as a fuel, in these days with their cry of "save fat" would it not be the part of patriotism to bring the percentages of the three elements of food nearer the accepted standards? Even assuming the extra food was fat free, the argument would not be affected, as the extra 269 calories bring the carbohydrate to only 1317 calories as against 1252 calories of fat.

CORNELIA GOLAY BENEDICT.

Editor, Journal of Home Economics:

In reply to the above letter we should like to explain:

First, that the paper was not written for the layman, but primarily for the specialist in nutrition and dietetics. Many points of general knowledge were therefore left to be assumed by the reader. A more popular version of this article was published in the *Vassar Quarterly* for May, 1918, in which these points were elaborated more carefully.

Second, we had no intention of making any implication as to whether the food consumption was excessive or not. The actual consumption, which is well within the average as indicated by the comparative table of such results, is stated, and compared with the energy requirements as calculated by the accepted methods. It is left to the reader to form his or her own conclusions as to the reason for the discrepancy, which is probably little greater than would be observed in a study of an average family on a liberal diet. In our more popular article we take pains to point out that "it would hardly be safe to conclude that all these young persons are eating a great deal more than they require. Our theoretical standards may be too small, owing to the existence of factors not yet recognized."

On the other hand we are not aware that the figures obtained by Gephart are anywhere "taken to indicate the large requirement of the active growing boy." As Chittenden says ("Nutrition of Man," p. 158):

Dietary studies. . . . affording more or less accurate information regarding the average amounts of protein, fat, and carbohydrate consumed under varying conditions are indeed most interesting and important as affording information regarding dietetic customs and habits, but the writer fails to see any reason why such data should be assumed to throw any light on the actual food requirements of the body.

Gephart himself (Rector's *Report*, St. Paul's School, Concord, 1916) referring to the fuel value per meal says:

These figures appear to be high, but, inasmuch as we have no previous results of this nature for comparison we can only say that they are a revelation.

Mrs. Benedict objects to our statement that the meals were well balanced on the ground that both the protein and the fat were too high. That the protein was high we have ourselves pointed out; that it was too high, we hesitate to say in the light of the rather wide differences of opinion on the part of the highest authorities. Sherman sums up his discussion of the subject by the remark "To allow for varying conditions and for individual preferences as well as to provide a liberal margin for safety it is customary to consider that from 10-15 per cent of the total calories may be in the form of protein." ("Chemistry of Food and Nutrition," 2d ed. p. 382.) In connection with the question of the fat content of the diet it is interesting to note the statement published in Course II of the Food Conservation Courses for Colleges to the effect that an average of 1300 dietary studies, largely American but some from other regions, shows an average of 4.5 ounces of fat per person per day. Our study showed an average of 4.9 ounces per day, but it must be remembered that our study was made in the coldest part of the year when the fat in the diet is likely to be at its highest. Since the food was neither unpleasant nor indigestible on account of its high fat content, and since fat may replace carbohydrate to a very large extent, limited chiefly by taste and convenience, the only argument against this use of fat is the patriotic one. But this study was of pre-war conditions when we felt that we were doing our whole duty if we made sure that no uneaten fat was wasted. The war rations of the College differ in this and many other particulars from the diet of those days, but a study of present conditions, while interesting in itself, would be of less value for comparison with other earlier studies.

A. L. MACLEOD,
M. A. GRIGGS.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Coöperation, The Hope of the Consumer. BY EMERSON P. HARRIS. New York: Macmillan Company, 1918, pp. 322. \$2.00. By mail of the Journal, \$2.15.

In our definition of democracy we are too apt to emphasize one phase of it to the neglect of others. It is political democracy that we stress, a form that we have attained in some measure in the United States. Real democracy has been defined by Mr. Roosevelt as "equal opportunity for all, special privilege for none."

Mr. Harris in this most interesting volume has shown us a way to move toward this economic democracy, through coöperation. Our present distributive system, based on private profit and competition, causes great social waste. Its aggressive selling methods cost the consuming public two billion dollars a year, and, what is more important, force goods upon the consumer to his detriment. Our whole economic system is based upon the fact that man has certain wants which he seeks to gratify. Progress comes with the stimulation of new wants. But a highly important problem is what wants to stimulate. Shall we have a system which will stimulate wants for goods which will provide the producer and distributor with a good profit, and, perhaps, injure the consumer, or at least oblige him to pay more for the goods than they are worth, or, shall we have a system of coöperation in which the consumer is given full and reliable information as to the nature and value of products, and is assisted in making a choice most advantageous to him? Salesmanship is confounded by its own exponents when one of them defines it as "the power to persuade people to purchase at a profit." Aggressive adver-

tising can also be indicted on the score that it magnifies the importance of things and creates an atmosphere favorable to materialism, a philosophy the results of which our men in the trenches are now fighting.

Under ceaseless competition between dealers there is every inducement to debase goods. "The public has a right to know the real facts about its purchases." We are told that the consumer, and more particularly the housewife, should inform herself as to the articles which she must purchase. But it is practically out of the question to be well informed as to the nature, utility, value, and fair price of all that one must buy.

Mr. Harris is not in sympathy with those who sweepingly condemn the middleman. There are certain functions which have to be performed, if not by the middleman, then by someone else. The same services must be performed, but they can and must be performed for less than the present charges. It is a question of difference in motive, of improved methods and inventions. Consumers must build and own the machinery of distribution and operate it in their own interest. Through coöperation consumers can secure their supplies at the exact cost of wholesale buying, plus that of transporting and breaking up into small quantities, the minimum cost at which distribution can be carried on. Under a system of coöperation the results of all economies go automatically to the consumers and not to swell the middlemen's profits.

Mr. Harris demonstrates the democratic basis of the Rochdale plan of coöperation, giving an account of its success, not only in retail business, but also in wholesale and in manufacturing in England and Scotland.

It is only because of coöperation as between individuals that human beings are enabled to live together in a society. Our whole industrial system is based essentially upon coöperation. Else how could we have even the rudiments of a division of labor? Coöperation is not merely a way in which one may save a few dollars on one's grocery bill; it is a creed, a belief in the brotherhood of man, and the outcome of a desire that all should work together for the benefit of each. Since 1914 the membership in the European coöperative societies has been steadily and rapidly increasing. The spirit of coöperation is gaining ground among the higher and middle classes.

Mr. Harris fully realizes the difficulties of starting coöperative stores in America. There has been a false assumption that the dealer receives a large arbitrary profit and that profit could be cut out simply by starting a coöperative store. An educational program on a large scale is the first necessity, for the success of practical coöperation depends ultimately upon the faith of the consumer and his willingness to stand by his associates. The author gives many practical suggestions and examples of coöperative undertakings which have been successful in this country. The success of producers' coöperation is evidence that Americans can work together in this way. Can not the American consumer do the same thing?

This is a volume which every housewife should read with some thought. It is plain enough for the average reader and is still a philosophical and scholarly treatment of the subject. The arrangement of the material is most clear and compact; the table of contents is admirably full, showing the busy reader at a glance the parts in which he may have the greater interest; and, for those who would wish to go deeper into the subject, there is the nucleus of a bibliography and the full text of model laws and other documents.

CHASE GOING WOODHOUSE,
Smith College.

The Starvation Treatment of Diabetes. By LEWIS WEBB HILL, M.D., and RENA S. ECKMAN. Boston: W. M. Leonard, 3d ed., 1917, pp. 134. \$1.25. By mail of the Journal, \$1.35.

The so-called Starvation Treatment otherwise known as the Allen Treatment with more or less modifications, is now used almost entirely in the treatment of diabetes. It is therefore imperative that every dietitian and every teacher of dietetics should be familiar with it.

The authors are well qualified to handle the subject, Doctor Hill being on the staff of both the Children's Hospital, Boston, and the Harvard Medical School. Miss Eckman has been for a number of years head dietitian at the Massachusetts General Hospital, Boston, and therefore presents the subject from a very practical standpoint.

It is of special interest to the dietitian although it is written for the practicing physician who is too busy to figure out dietary values. A chapter is devoted to the plan and details of the treatment followed by specific instructions for making the necessary urinary tests for sugar and acidosis. A graduated series of diet tables for patients ranging in weight from 88 to 176 pounds is given with the grams of protein, fat and carbohydrate, and the total calories. These tables are arranged for less fat than in the previous edition, owing to the proven tendency of high fat diets to produce acidosis. The quantities of foods making up the menus are given, not only in terms of grams for accurate work, but also in familiar servings, such as "2 slices, 6 inches long," "one heaping tablespoon," and "one small serving."

A number of very attractive recipes are given, including some special diabetic preparations.

A new feature of this edition is a table of analyses of diabetic foods, made by the Connecticut Agricultural Experiment Station.

Although the subject is a very technical one, the book is very clearly and interestingly written.

LENNA F. COOPER.

Industrial Arithmetic for Girls. By NELSON L. RORAY. Philadelphia: P. Blakistons' Sons & Co., 1917, pp. 196. \$.75. By mail of the Journal, \$.85.

This *Industrial Arithmetic* is a compact little book of problems on a wide variety of subjects. Small as it is, it is a welcome addition to the meager list of books on applied mathematics for girls.

The general plan of the book is unusual. It consists almost entirely of examples with little explanatory matter. These examples are divided into groups called lessons. Fifty of these lessons are given over to special subjects such as angles and polygons, carpeting, recipes, tucks, areas of circles, the budget, insurance, household accounts, volumes of prisms, the nutritive value of food, the print shop. These lessons are arranged with little regard to sequence of subject matter, and they are interspersed with an equal number of so called review lessons made up of miscellaneous examples. It is difficult to understand the reason for this lack of continuity. For instance, what is the advantage of separating the lesson on garment design from that on tucks by seven other lessons on such totally unrelated subjects as carpeting, area of rectangles, and measurement in cooking, not to mention the miscellaneous reviews? Why should the lesson on recipes be separated from that on foods by seventy-seven totally unrelated lessons?

The problems in the review lessons also represent a strange sequence of topics. For instance, in one lesson selected at random five consecutive problems are devoted to the following subjects: floor plans, coal bins, frozen pineapple, cutting a piece of muslin, cooking meat. This is typical of the con-

tinual shifting of attention from one topic to another. It may be possible in this way to arouse sustained interest in the problems of the home and shop, and to develop skill in all these various applied problems, but it seems more reasonable to suppose that interest can be developed through focusing attention on one subject at a time, and that skill in the problems of the home or of the trade can best be developed by practice in the problems of that particular occupation.

This failure to group the problems with regard to subject matter may be due in part to the author's faith in the value of mental gymnastics, for he includes problems that could justify their appearance on no other basis than the one he so frankly offers. For instance: "If the rent of $5\frac{2}{3}$ acres of land is \$21 $\frac{3}{4}$ (sic), what will be the rent of $19\frac{9}{16}$ acres of land at the same rate?" It seem sa pity to include in an industrial arithmetic examples that belong to the old fashioned puzzle type.

The question naturally arises as to the reason for calling this book an industrial arithmetic. To be sure, four of the 108 lessons are devoted to the print shop. But printing is not the only trade for girls, nor is it the only one that involves applied arithmetic. Is it true that general training is sufficient preparation for the use of arithmetic in all other trades?

The book is rich in material although its effectiveness is lessened by this lack of clearness of purpose. The interesting collection of problems will, however, serve admirably to enrich the content of arithmetic courses, and the book will prove a useful addition to the texts available for the education of girls.

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Patent and Proprietary Medicines. John Phillips Street. Chicago: American Medical Association, 535 N. Dearborn St., 1917, pp. 274. \$1.25, postpaid.

Diseases of Nutrition and Infant Feeding. John Lovett Morse and Fritz B. Talbot. New York: The Macmillan Company, 1916, pp. 346. \$3.00.

- Food Guide for War Service at Home.* Prepared under the Direction of the United States Food Administration in coöperation with the Department of Agriculture and the Bureau of Education. New York: Charles Scribner's Sons, 1918, pp. 67. \$25.
- Food and the War.* United States Food Administration in coöperation with the Department of Agriculture and the Bureau of Education. Boston: Houghton Mifflin Co., 1918, pp. 379. \$80. Revised edition of the course offered for colleges.
- Infant Feeding.* Clifford G. Grulee. Third Edition Revised. Philadelphia: W. B. Saunders Company, 1917, pp. 326, illustrated. \$3.25.
- The Elements of the Science of Nutrition.* Graham Lusk. Third Edition, Reset. Philadelphia: W. B. Saunders Company, 1917, pp. 641. \$4.50.
- War Bread.* Alonzo E. Taylor. New York: The Macmillan Company, 1918, pp. 99. \$60.
- Conservation of Food Energy.* Henry Prentis Armsby. Philadelphia: W. B. Saunders Company, 1918, pp. 65. \$75.

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Issued by the United States Department of Agriculture:

- Use Corn Meal and Corn Flour to Save Wheat.* Circular No. 117.
- Use Oats to Save Wheat.* Circular No. 118.
- Use Potatoes to Save Wheat.* Circular No. 106.
- Use Rice Flour to Save Wheat.* Circular No. 119.
- Suitable Storage Conditions for Certain Perishable Food Products.* Bulletin No. 729, July 24, 1918.

Issued by the United States Public Health Service:

- Some Observations on the Personality of Feeble-Minded Children in the General Population.* Reprint No. 467 from the Public Health Reports.

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- Children's Health Centers.* Children's Year Leaflet No. 5.
- Studies of Use of Milk by Families Having Little Children.* II. Washington.

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- Practical Patriotic Recipes.* Hampton Normal and Agricultural Institute Bulletin Vol. 14, No. 1.
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- War Diet in the Home.* Instructors' Manual. A. R. C. 706, June 21, 1918. American Red Cross, Department of Nursing.
- War Ideas—To Make You Healthy, Wealthy, Wise.* Compiled by the seniors and juniors of the Department of Home Economics, University of Wyoming, Laramie, Wyo.

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Undernutrition of Children. Dr. Anna Richardson, *N. Y. Med. Jour.*, July 20, 1918. Individual help to be given to 182 children by a proposed school lunch.

Some Relations of Diet to Disease. L. B. Mendel, *N. Y. Med. Jour.*, July 13, 1918. "Malnutrition" term little used now. "Deficiency Diseases" produce specific clinical manifestations due to lack of one of the two types of vitamins. New order of phenomena shows danger exists in restricted diets.

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A Clinical Consideration of the Etiological Importance of Fat. Harry Lowenberg. *Therapeutic Gazette*, July 15, 1918.

Congenital Syphilis and the Doctor. J. M. Wakefield, *N. Y. Med. Jour.*, Aug. 17, 1918. Definition. Symptoms. Six cases with history. Doctor's duty to the public.

Is the Modern Treatment of Syphilis a Success? Editorial, *N. Y. Med. Jour.*, Aug. 17, 1918. Quotes Dr. W. T. Williams, *Conadian Med. Assn. Jour.*, July, 1918. Seven per cent of 500 cases cured.

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The Nutritive Value of Certain Fish. J. C. Drummond, *Jour. Phys.*, 52 (1918), Nos. 2 and 3, pp. 95-109. Summary as follows:

1. The coagulable proteins of the muscle tissue of cod, herring, and canned salmon possess a nutritive value as high as those derived from beef.

2. The so-called "fatty" fish, which contain considerable quantities of fat distributed throughout their muscle tissue, may serve as valuable sources of the important dietary essential, the fat-soluble "A."

3. Certain fish-liver oils are particularly rich in the fat-soluble accessory.

4. No appreciable amounts of the water-soluble or antineuritic factor were detected in the muscle tissues of the fishes examined. Small amounts were, however, present in extracts prepared from the whole herring, having originated in all probability from the reproductive organs, or other glandular organs.

The Vasodilator Action of Histamine and of Some Other Substances. H. H. Dale and A. N. Richards, *Jour. Phys.*, 52 (1918), Nos. 2 and 3, pp. 110-165.

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FOOD

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The Relation of the Nurse to the Conservation Program. Edna N. White, *Amer. Jour. Nursing*, Sept.

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The Birth and Childhood of Vocational Education with a Forecast of Its Development During Adolescence. David Snedden, *Educ. Admin. and Supervision*, May.

Vocation Re-Education of Disabled Soldiers. T. B. Kidner, *Educ. Admin. and Supervision*, June.

Vocational Education under the Smith-Hughes Act. C. A. Prosser, *Educ. Admin. and Supervision*, June.

NEWS FROM THE FIELD

Honorary Memberships. The American Home Economics Association has honored itself by inviting a number of distinguished people to become honorary members of the Association. Acceptances to the invitations have been received from Mr. Herbert Hoover and Mrs. Hoover—whom we are all delighted to honor; from Dr. E. V. McCollum, who served the Association in so many ways; from Lord Rhonda, formerly Food Controller for England, who wrote shortly before his death; from Silvio Crispi, Food Controller for Italy; from M. E. Gley of the French Food Administration, and M. Vilgrain, Deputy Food Commissioner for France; and from Prof. E. H. Starling of the Royal Society, London. It is a great privilege to welcome these members, and it should also be an incentive toward making the Association worth while in every way.

Among the changes in positions that have taken place this fall the following may be noted:

Josephine Berry has resigned from the professorship of home economics at the University of Minnesota, and Mildred Weigley has become head of the department. Miss Weigley has been acting head during the past year during Miss Berry's service on the Vocational Education Board.

Dr. Amy Daniels, formerly of the University of Wisconsin, is in charge of the Nutrition Laboratory of the Child Welfare Research Station at the University of Iowa, Iowa City. This research station coöperates with the Medical School and other departments of the University.

Dr. Ruth Wheeler, for many years at the University of Illinois, is in charge of the work in Home Economics at Goucher College, Baltimore.

Jean Mackinnon, who was last year with the Department of Agriculture, is substituting for Miss Sweeney.

Georgia White, formerly Dean of Women at the Michigan Agricultural College, has become Dean of Women at Cornell University. Mary Edmunds has taken her place as Dean of Home Economics at Michigan.

Emmeline Whitcomb has left the University of Wyoming to become head of the Department of Home Economics at the University of Montana, and Greta Gray, from the Pittsburg Normal School, is to take Miss Whitcomb's place at Wyoming.

Jessie Hoover has resigned from Idaho Agricultural College to become Federal Leader of Dairy Agents, Office of Extension Work North and West, U. S. Department of Agriculture, in coöperation with the Dairy Division.

Mrs. Ellen Dabney is on leave of absence from her supervisorship of the city schools in Seattle and is City Home Demonstration Agent for the District of Columbia.

Dr. Louise Stanley has leave of absence from the University of Missouri to be Special Agent of the Federal Board of Vocational Education.

Adelaide Baylor, formerly State Supervisor of Home Economics for Idaho, is also serving upon the same Board.

Gertrude Van Hoesen, who has resigned from the University of Chicago, and Emma Conley of the University of Wisconsin, and Winifred Gibbs, formerly of the A. I. C. P., New York City, are Assistants in the Extension Work for Women, Office of Extension Work, North and West.

Mrs. Roger Adams (Lucile Wheeler) of the University of Illinois, is in charge of the Experimental Laboratory of the Food Administration.

Dr. Minna Denton has leave of absence from Lewis Institute, where she had accepted a position, and is in charge of the Experimental Laboratory at the Department of Agriculture.

Dr. Katharine Blunt has been made Associate Professor at the University of Chicago, and is Chairman of the Department of Home Economics in the School of Education.

Grace Hood has resigned from Lewis Institute and is to be this year in charge of the Home Economics work at the University of Cincinnati.

Mary Sweeney has a leave of absence from the University of Kentucky and is in France, doing canteen work for the Young Men's Christian Association.

Notes from the The Stout Institute. The school of Household Arts of The Stout Institute has completed the second year in its new building, one of the largest and most complete of its kind in the country. The basement contains locker rooms, laundry, refrigeration room, recitation rooms, and store rooms. The first floor is used for administration offices, library and auditorium. The second floor is devoted to the work of clothing and textiles and consists of six laboratories, with recitation rooms, offices, and rest rooms.

The department of foods and cookery occupies the third floor, with four large kitchen laboratories, and four smaller laboratories for special experimental or practice work, and the usual lecture rooms and offices. Each laboratory is equipped with a built-in refrigerator, cooled by a refrigeration system. Four science laboratories, two art rooms, an amphitheatre seating two hundred and fifty, research laboratories, a dark room for lantern work, are on the fourth floor.

The passage by the legislature of the bill granting to The Stout Institute the power to confer the B.S. degree in Household Arts and in Industrial Arts made it possible to offer a greater variety of courses during the past year, both technical and scientific, as well as academic and cultural, such as history, economics, and literature.

Both the faculty and students of the Institute have taken an active part in war work. Miss Kugel, director of The School of Household Arts, is a member of the Woman's Committee of the Council of Defense, and chairman of the County Food Conservation Committee. Others of the faculty have lectured on Conservation. Students have been giving demonstrations throughout the year, thus having an opportunity for service as well as gaining valuable experience and practice. Classes have been held for the training of county women as demonstration leaders. A war kitchen, for the women of the community, has been maintained during the summer and the fall months. Every course in foods, from the eighth grade practice classes to the advanced work in experimental cookery, has stressed the present problems, so that students possess the knowledge and ability as well as the enthusiasm that enables them to be most intelligent Food Administration workers. A special course on "The Present Food Problem" has been required of all students.

In the clothing courses Red Cross hospital garments, and garments for Belgian relief have supplemented or have been substituted for the usual work, whenever possible, and special classes in surgical dressings have been arranged. Menomonie's Public Schools have a progressive and effective Junior Red Cross. The work and activities on sewing are under the direction of Miss Holman, Supervisor of the Domestic Art Practice Work in the Institute, so that practice teachers have conducted work in the public school classes.

The Stout Institute has been placed on the same basis as the other state schools, with free tuition for Wisconsin students.

THE
Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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Conservation is Imperative

FOR the people of the United States, the need of
voluntary sacrifice, of willing devotion is as great
as ever. - - - - -

That same spirit by which Europe was saved from its
gravest peril during the season of food shortage is still
required of us. Proving our endurance as we have
proved our energy, the American people are to keep the
trust committed to them. - - - - -

THE
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DIETITIAN SERVICE AT HOME¹

LULU GRAVES

Cornell University, Ithaca, N. Y.

The subject assigned to me on the program is "The Dietitian's Service Overseas," but my knowledge of that service is so limited that it would not be possible for me to discuss it; I shall, therefore, confine myself to the opportunities and need for service at home.

During the past year when it has been necessary to forego the use of many food materials which we have previously used in extravagant amounts and to utilize others in ways never before thought of, a number of institutions have suddenly realized that it is really desirable to have "brains in the kitchen." In common with other useful occupations throughout the nation, the work of the dietitian has increased very greatly, not alone in the problem of using substitute food materials in the preparation of palatable food for large groups of people, and in the exercising of eternal vigilance to prevent waste, but in the labor situation, a difficulty which has been harder to meet than either of the others. The calls for dietitians for the past year have in the majority of cases placed at least as great emphasis upon the executive as upon the teaching ability of the woman. This is no doubt due to the condition just referred to, but under no circumstances do we want this tendency to prevail.

In order to work intelligently with the physician it is necessary for a dietitian to be familiar with the common symptoms and diagnosis of diseases of metabolism. At this time when our physicians and nurses

¹ Presented at The Eleventh Annual Meeting of the American Home Economics Association, Chicago, June, 1918.

are giving their services to the country to such an extent that our hospitals are being managed with the fewest possible number of physicians, and when they are accepting the largest numbers of untrained girls that can possibly be cared for, it is most essential that the dietitian can step in to the breach, follow up her diets, make use of the ward charts as well as her own and in many ways relieve the physician, at the same time enlarging her own capabilities for usefulness. She should be able to go into the laboratory, if need be, and make any of the simpler tests or analyses which are essential to treatment, particularly urine and blood tests; if there is a question about substitute food materials which must be used in special diets and she cannot get the desired information from the city chemist she should be able to make at least rough tests of these.

Her work as an aid to the physician need not be confined to the wards; hospital dispensaries are much in need of this work. Dispensaries that have formerly had five, or six, or even more medical men on their service are now glad to get one or two. The patients who come to the dispensary are utterly at sea with the substitute food materials and desperately in need of advice. The physician with all of his other added work cannot take time to go into the details of the recent changes, with the necessary instructions in cooking, even should he have the information.

When our men are returned to us from the front with the various abnormal conditions that we know must be faced, there must necessarily be many who will need dietetic as well as surgical treatment. Bodies that have been taxed to the limit of endurance, or that have lost their reserve force must have skillful treatment of every kind. If we are not now able to give them this, why not begin at once to fit ourselves for it and be ready when the need arises. The physician will be glad of help if he is convinced that the one offering it knows what she is doing. She should be able to understand what he is talking about when he mentions other things beside glycosuria; if he speaks of acidosis she should know the various causes that may bring about this condition, and if he is interested in the nitrogen content of his patient's diet, she should know food composition well enough to give what he wishes without troubling him for details. In all probability he does not know what happens to the food elements in the process of cooking, and it is her province to enlighten him if necessary.

It is sometimes said that the physician does not want some one else to prescribe for his patient. If my own experience may serve as an illustration, that is not the case. In more than three years' experience at Lakeside Hospital no physician on the staff, or in any other way connected with the hospital, has ever prescribed a diet for a patient, whether the patient was receiving dietetic treatment or for any other reason being served a special diet. If we had not discussed the patient's condition, they would send instructions to my office to serve a diet low in nitrogen, or high in iron, or some such general terms, but never a specific order. My experience in Chicago hospitals was the same. Charts were always kept in my department for every patient thus treated, tabulating what was prescribed, what was eaten, and what was refused, if any, for each meal served. The number of calories yielded as well as the number of grams of each food element was recorded. If the laboratory findings were not what we thought they should be we could refer to our chart and tell whether or not the difficulty was caused by diet.

On the other hand it is to the dietitian's advantage to get all the information possible from the physician. She should take time to attend clinics and lectures if they are in any way relative to the work, see X-ray examinations and in other ways let no opportunity pass to learn the things not included in her college course.

When the country becomes normal again there will probably be a continuance of the movement begun a few years ago to establish metabolism wards in our institutions. So far as I know those already established are, with few exceptions, in charge of nurses when they should be under the care of the dietitian. If dietitians meet the present crisis as they should this matter will adjust itself.

Last winter a questionnaire was sent from my department to 100 hospitals; much to my surprise I learned that more than 60 per cent of these hospitals had a trained woman in charge of their main kitchens. Though this questionnaire was sent to a special class of hospitals and not for the purpose of getting this information, it is of interest to know that this plan is becoming so general. Probably, however, the per cent of hospitals taken as a whole which have this plan would not be anything like this figure.

It is useless to dwell upon the importance of tact, judgment, self-control, ability to meet emergencies, and the numerous other characteristics

which one must possess if one is to supervise the work of the main kitchen in a hospital. The people whom we must employ in our kitchens today tax the patience and ingenuity of a superwoman; the markets and deliveries are no less a trial. Because of this the need arises for mechanical devices to do all the work possible. In the selection of this equipment to save man power one must be more than usually alert to the construction. Those in the kitchens are apt to be irresponsible and incompetent either to control or to care for machinery. We must, so far as possible, consider how long a time will be required to replace any part of the machine which may get out of order, whether or not it can be supplied by a local dealer; if it is so complicated that much time will be required to teach an employee how to use it or to care for it and whether or not it may be easily kept clean.

A number of hospitals are introducing cafeteria service for their employees, or nurses, or both, as one solution for shortage of labor. This calls for knowledge of other things which previously was not considered a part of the dietitian's business.

Since hospitals are asking more of their dietitians they will naturally expect to give more. One thing that is very important is the offering of training to student dietitians. This training may not be essential to every one who goes into hospital work but it certainly is an advantage to any one to have this experience in a good hospital before assuming the management of a department. Hospital life is so different from the life and experience of the average woman that this period in which she gets an insight into hospital technique and requirements without having the responsibility is very valuable. In the past, few hospitals have had trained women in their kitchens and very few indeed have had any sort of system. When a woman is engaged for this work it is very apt to be for the purpose of establishing a system. If she has had this training as a student dietitian she will have some foundation upon which to build even though conditions may differ greatly. Some dietitians have objected to giving this training to students, not caring to add this to their numerous other duties, but that feeling is not so prevalent as formerly and now the majority of dietitians are willing to do it.

The services of our dietitians in training camps have not been what we could wish in every instance. Perhaps the work is too new to expect it to be well organized and efficient. There is unquestionably a great uncultivated field for work there. As nearly as I can learn the menus

and general cooking are in the hands of men detailed to that duty; the extent of the dietitian's service depends entirely upon the mess sergeant.

One camp with which I happen to be familiar has seven dietitians, each working independently of the rest, and only one of the seven had any knowledge or experience with diets for special diseases before going into this work. What can a woman hope to do in this service where practically her whole duty is feeding the sick if she has had no previous training in diet in disease. Everyone concerned realizes the difficulties of the present arrangement, and plans are now being considered, I understand, for remedying the matter, at least to some extent. There is need now, and the need will increase, for women with knowledge of food composition and food values, and ability to adapt that knowledge to the treatment of disease. Possibly at no time will she be privileged to select from the markets; so she must be able to utilize the materials at hand to the best advantage.

Other opportunities for the dietitian to serve at home are offered by commercial interests. Many large manufacturing firms and department stores are wanting women of training to feed their employees. They realize the value of having employees well nourished. This applies not only to the serving of proper food in their lunch rooms, but it also includes giving aid to those employees who have some abnormal condition of the digestive organs, just as the firm's nurse gives her services.

Does not this sound as if there were sufficient need for the dietitian's services at home? I do not mean to discourage any one who feels that she must go overseas—provided she has the physical, moral, and mental strength to meet the conditions there; but there is so much to be done at home, and really more opportunity for doing it, that we must some of us be willing to do the work which does not carry with it the halo.

SCHOOL LUNCH WORK IN OHIO

TREVA E. KAUFFMAN

Ohio State University

For a number of years considerable thought has been given to the teaching of home economics in the rural schools. There has been some little discussion of the work in writing, and some work actually accomplished. In the year 1914, the Department of Home Economics Extension of Ohio was asked by the State Superintendent of Public Instruction to visit and to give a week's instruction in home economics in every county normal school in the state. The superintendent was looking forward to the time when a law might be passed that every school in Ohio must have some work in home economics, as had been the case with agricultural work, hence his interest in preparing teachers to a limited extent. These county normal schools in Ohio, about fifty in number, give instruction to rural teachers for a period of one year. Since the time for giving the instruction in home economics was only one week, it was decided to give these students a general view of the subject, and to take up the food phase of the work in an intensive study.

After our first year's work with these students, the demand and opportunity presented itself for actually helping some of them start this work in their own schools. The plan evolved was to have these teachers present some food principles and facts to their pupils and make the application through the school lunch. This cold noon-day lunch of thousands of school children of the rural districts seemed to be the logical center around which to begin our study of foods.

As the department was not sure that the plan was workable, it was thought best to try it out. Four one-room rural schools were selected in two different counties. Two teachers, a man and a woman, were graduates of their county normal school, while the other two, also one man and one woman, had the minimum requirement of training in a state normal school. Each community was entirely different from the others. One school was located near a small village of about 100 people, both white and colored, another school in a progressive wealthy farming community, another in a very conservative community, having no interest in civic affairs whatsoever, the fourth in a somewhat mixed community, with some progressive farmers, and others belonging to a very conservative religious group.

A series of twenty food lessons was tried out by the writer in these four practice one-room schools in 1915-16. The plan used was to teach some food principles, correlating them with other studies in school, and making the application through the serving of one lunch dish to supplement the cold lunch from home.

From the results of our experiment, four phases of the work in Ohio have been developed, namely:

1. The teaching of home economics (foods) in connection with the school lunch in the small rural school of one or two rooms.
2. The teaching of food work in the larger rural school, that is centralized, consolidated, or village, in connection with the school lunch.
3. The use of the series of food lessons in the county normal schools to give these students teaching methods.
4. The use of our plans for the public schools in the city having a lunch room or desiring to start this work.

The Small Rural School. The plan used for this school was as follows: Only a small amount of equipment was necessary. A two burner stove (oil or gasoline), 1 large kettle, a 12 quart pail or stock pot, a dish pan, drain pan, spoons, measuring cup, knives, and other small utensils, made up the essentials. For three of these practice schools the University furnished this minimum of equipment which, however, was purchased by the pupils after the year's work. At the fourth school, interested parents furnished the equipment. A cupboard and a table were necessary and these were made by the boys of the schools from boxes, or the table was donated by a parent. The serving dishes, consisting of a plate, spoon, and cup for each child, were furnished by each pupil.

One objection made by some superintendents and parents was that it was not always possible to secure the equipment, and that there was not sufficient space for it. This was entirely overcome, as was shown by the work in the practice schools and many other schools. The equipment in a number of schools was donated by the parents of the pupils, or a social was given and the money received used for equipment. The amount of space required was so small that a corner in the back of the smallest school room was ample.

It has been stated in explaining the experiment, that the plan was to teach some food principles, correlating them with other studies in school, and making the application through the serving of one lunch dish to supplement the cold lunch from home. Each new lesson was

presented and demonstrated by the teacher, requiring from 30 to 40 minutes on one day of each week, with the assistance of a committee of three pupils. If the teacher desired to serve a lunch dish each day, it was prepared before school time, at recess, or at home. In each case, however, it was reheated at noon, and no school time was lost. This work was done by the members of the committee for the week.

Another objection made was that there was not time in the overcrowded school curriculum for the work. This objection was overcome in every case by correlating our work with other studies, such as geography, arithmetic, language, hygiene, drawing, and agriculture.

The supplies for the lunch dish in these small rural schools were donated by the pupils, the teacher taking care to divide the amounts necessary among all the pupils. In all schools where this work has been tried out, all pupils have donated their share of materials.

In order to encourage the further practice of food preparation, and to bring the interests of home and school closer together, a card record of various home duties performed by the pupils was kept by the teacher.

As a result of this experiment, our series of twenty food lessons was published. These lessons have been used by many schools of this type.

The Larger Rural School. In the larger rural school, the cold noon day lunch was more of a problem than in the small rural school. Here it was found that many children ride long distances in the early morning often without breakfast and remain in school the entire day with nothing but a cold lunch at noon. They return late in the evening, eat a heavy meal and go to bed. The plan of this school day was the reverse of what it should be, as a nutritious breakfast should be eaten, with a warm lunch at noon, and a light digestible supper at night. Neither the underfed nor overfed child could give his mind to study.

As a means of presenting the subject of home economics in this type of school, it seemed best for the present to use the school lunch, since, due to the lack of funds for buying equipment and paying a trained teacher, it would be many years before regular home economics work could be undertaken.

A minimum amount of equipment was used, usually donated by the community or by the Board of Education, or purchased from funds obtained from an entertainment. The equipment was placed in some available room, and a class of older girls, from the higher grades or high school, under the direction of one of the regular teachers, prepared and served the lunch. The teacher, of course, was directed by our plans.

The class purchased the supplies, planned, prepared, and served the food, washed the dishes, kept accounts, and calculated the cost per serving. All this constituted a valuable lesson in home economics.

This work was placed on the same basis as any other subject taught in school, and credit was given for it.

When a teacher was found who had some training in home economics more actual teaching of food principles and values was accomplished with this serving of the school lunch. If it was found (as in a few cases) that home economics had already been taught, then the class in foods had charge of the lunch and used their practice dishes for the lunch room. When there was an advanced class in foods, as in some cities, it was found most desirable to have them in charge of the work.

In these schools one of the two following plans was used: one or two hot dishes were prepared to supplement the cold lunch from home, or a sufficient number of dishes were prepared to supply the whole lunch. In this type of school the supplies were bought, and the lunch dish sold at cost.

The crowded conditions in many schools complicated the serving when there were several hundred students. In such cases, the younger pupils were served in their school rooms at their desk, by a committee of three, while the older pupils were served "cafeteria style." Where an extra room was available, lunch tables and chairs were provided. This proved to be a desirable arrangement. For use in these schools a 46-page bulletin has been published as a result of the experiment of the first year made by a number of schools.

There has been some discussion and questioning as to the educational value of a class spending all their practice time on the preparation and serving of lunch dishes. But from our experience, the conditions and type of the schools considered, this method has been educational to the school as a whole as well as to the girls, and has provided a nutritive lunch. In all the schools doing this work, the idea of presenting food principles or facts, and correlating them with other studies in school has been suggested in talks and plans and is definitely known to have been accomplished.

The County Normal School. The students in these schools besides receiving one week's instruction in home economics from our extension workers, have used our plans in several different ways. A number of them have made use of the lessons, following the plan of the small rural schools, the normal director requiring the students to present and

demonstrate the lessons. When a trained home economics teacher was director in the school where the normal school was located, she supervised the work, using the same plan. Through their practice teaching these students have gone out and presented lessons in the small rural schools, and prepared lunch dishes in the larger rural school.

The City Public School. The public school in the city, representing the fourth phase of the work, did not request help with its school lunch problem until this year. The requests have come from two different existing conditions: from schools having home economics and lunch room work, and desiring to correlate the two; and from schools having no home economics but wishing to start some work through the school lunch. So far the plans for the rural school have been used, as no new plan has been devised.

A great deal can be accomplished to further this work, since the Federal Government has placed Urban Home Demonstration Agents in most of our larger cities. Already both Urban and County Home Demonstration Agents in this state have started such a movement.

During the past year valuable instruction in food conservation has been given and good results have been accomplished through the serving of the school lunch. Schools serving lunches signed the Food Pledge Card, and displayed the Window Card and Food Conservation Posters.

The following table compares the results of the three years' work:

	YEAR		
	1915-16	1916-17	1917-18
Number of counties serving school lunches (Ohio has 88 counties) . . .	19	47	64
Number of county superintendents interested	14	35	67
Number of small rural schools serving lunches	23	36	48
Number of larger rural schools serving lunches	20	31	53
Number of county normal schools reporting work accomplished	10	13	12
Number of city schools reporting assistance from our plans			10
Total number of schools serving school lunches	53	82	123

From the results of our work in this state for the past three years, it has been proved that the plan is workable, and its value to the school and community has been established. For the small rural school and even the larger school (unless given Federal aid through the Smith-Hughes Law), this is the only kind of home economics work, with the exception of Girls' Club work, that can be beneficially and successfully carried on.

TEACHING THE BUDGET TO CHILDREN

HELEN C. GOODSPEED

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The following material consists of two lesson plans and a dramatic exercise inspired by the folder "Learning How to Save" which was contributed by a group of home economics workers. The National War Savings Committee, United States Treasury Department, will send copies on application. The first lesson is on Children's Budgets and Personal Accounts, the second on the Household Budget and Household Accounts; the dramatic exercise also presents the household budget.

These plans may be suggestive to those teachers who have found the budget hard to present to the immature student. The subject matter in Lesson I is adapted to the seventh grade and that in Lesson I and II may be used in the eighth grade and in high school.

The dramatic exercise "Our Budget" which follows the lesson plans illustrates one way of popularizing the idea of the household budget and suggests possibilities of dramatization of household arts subjects. Both the lesson plans and the exercise have been used successfully.

LESSON I. PLAN FOR CHILDREN'S BUDGET AND PERSONAL ACCOUNTS

Teacher's Aim: To encourage personal and patriotic thrift by means of War Savings Stamps. To show how, even with a small allowance each week, some pennies may be saved.

*Points to be taught**Method of Presentation*

Teacher tells:—I have in mind a little girl named Nancy Martin who receives 25 cents a week to spend. One day I asked her to tell me how she had spent her money for the week previous. She was unable to tell me. She knew she had bought some candy and gone to the movies, but aside from that she could not account for it.

Points to be taught

Why Nancy will not be able to handle money wisely when she grows up.

1. She is developing careless habits of handling money.
2. She is not developing the habit of saving.

Why the good business man knows for what he has spent money.

1. He keeps an account.

Why Nancy was ashamed of items

1. All for herself.
2. All for something of no lasting value.
3. Nothing saved.
4. Not patriotic to eat so much candy.

How Nancy might change the items so that she would not be ashamed of them.

1. School supplies..... .05
2. Self..... .10
3. Church..... .05

What we call the young man who can but won't go to war. Slacker.

Pennies that could work for Uncle Sam, but don't. Slacker pennies.

How lend \$.05 to Uncle Sam? Save it toward buying a Thrift Stamp.

First step in house-building. Plan.

Method of Presentation

Do you think that when Nancy grows up she will be able to spend money wisely?

Supposing I asked a good business man to account for the money that he had handled during a week. Would he have any way of telling definitely for what his money had been spent?

I told Nancy to keep an account for a week and at the end of the week she brought me her note book. As I took the book I said, "Well, Nancy, I hope you showed good judgment in spending."

Nancy seemed to be ashamed of her items. Teacher writes on board.

Nancy's Account

<i>Amount received</i>	<i>Amount spent</i>
From parents	Mon., Candy \$0.10
\$0.25	Wed., Game .10
	Fri., Candy .05

Can you tell why Nancy was ashamed of these items?

How could Nancy have changed those items so that she would not be ashamed of them the next week?

What is the young man called who is able to go to war but yet hangs back?

Then what might we call pennies which we could lend for war work, but which we often do spend for extra self gratification?

Nancy has \$.05 left. How can she lend that to Uncle Sam?

If you were thinking of building a house, how would you begin?

Points to be taught

What you need before cutting a dress. Pattern.

The spender of money needs

1. Plan for spending, or a Budget.

Method of presentation

If you were going to make a dress, what would you do before you begin to cut it?

What does anyone who handles money need before spending it?

Teacher tells.

Just as a plan for building is made before the construction work begins, so a plan for spending is made before one begins to spend.

I am going to show you a plan that both you and Nancy could use.

Teacher explains and illustrates with board.

Budget or money plan for week

I EXPECT TO RECEIVE	I EXPECT TO SAVE	I EXPECT TO SPEND
On hand	For	For
From earnings.....	W. S. S..... \$0.05	School..... \$0.05
From gifts.....	For.....	Self..... .10
From parents..... \$0.25	For.....	Church..... .05
Total..... \$0.25	\$0.05	\$0.20

Expense account

BALANCE ON HAND	AMOUNT RECEIVED	RECEIVED FROM PARENTS	AMOUNT SPENT	SPENT FOR	AMOUNT SAVED
Monday.....	\$0.25				\$0.05
Tuesday..... \$0.20			\$0.05	Pad	
Wednesday..... .15			.05	Red Cross	
Thursday..... .10			.05	Candy	
Friday..... .05					
Saturday..... .05					
Sunday..... .05			.05	Church	
Total..... .00			\$0.20		\$0.05

Students are asked to copy the above forms to keep accounts for a week and report,

LESSON II. THE HOUSEHOLD BUDGET AND ACCOUNTS

Teacher's Aim: To show the children how a household budget will help the family to buy W. S. S.

Points to be taught

How to live within our means—

1. Budget

2. Learning to spend wisely.

A budget is a plan for spending money.

Before making plan

1. Know how much you have to spend.

2. Know for what it must be spent.

Method of Presentation

How many made a budget and kept accounts last week?

Discussion of results follow.

Teacher tells:—Nancy Martin tried the budget and accounts for a week just as you did. One evening Mr. Martin was particularly disturbed at the size of the grocery bills. Mrs. Martin declared that she had no idea they were getting so enormous. Then Mr. Martin said, "Why don't you try Nancy's budget scheme, and then you'll know at the beginning just how much you can spend for groceries and we'll try to live within it." Mrs. Martin replied, "Well, I suppose I could keep accounts."

But supposing she had been keeping accounts. Would just that have reduced the size of those grocery bills? Would accounts alone help her to live within her means? What would?

What is a budget?

What is the first thing you must know before making a plan for spending? Second thing?

Mr. Martin told Mrs. Martin that they had exactly \$1200 per year to cover all the living expenses of their family,—Mr. and Mrs. Martin and three children.

Points to be taught

Items in the Martin's living expenses—Food, Clothing, Rent or taxes, Amusement, Fuel (heat, light), Furnishings, Wages, Insurance and savings, Health, School, Church and charity, Carfare.

Items grouped—Food, Rent, Clothing, Running expenses, Sundries—including savings.

Most expensive item—Food. Why?

1. We are not only supplying our own country and our own soldiers with food but also have been sending to the Allies.
2. We have had to provide for food sunk in transportation. Hence food is scarce and high.

Division of income before war.

Food, $\frac{1}{3}$; Rent, $\frac{1}{5}$; Clothing, $\frac{1}{7}$; Running expenses, $\frac{1}{7}$; Sundries, $\frac{1}{5}$.

Money spent for food:

Per year \$400.00

Per month 33.00

Per week 8.33

Increase in cost of food—Almost doubled.

Rents have increased but may still be considered $\frac{1}{5}$.

To increase food allowance deduct from: Clothing; Sundries.

Result of survey made in a public school in New York City.

Present division of \$1200 income

Food \$40 per month

Clothing \$20 per month

Rent \$20 per month

Sundries \$10 per month

Running expenses \$10 per month

Method of Presentation

What are some of the things that a family like this will spend money for?

Let us group these items under five main heads.

Which item in this group requires the most money today? Why?

Teacher tells.

According to this division with an income of \$1200 how much could the Martins spend for food each year? Per month? Per week?

Could a family of five be fed on \$8.33 a week now? At what rate has the cost of food increased?

Teacher tells.

Have rents increased as much as food?

If the Martins are now spending about one-half of their income for food instead of one-third as formerly from which of these groups should they plan to take the extra money?

Teacher tells.

Points to be taught

How cut down on clothing

1. It is bad taste to be extravagant in clothing.

Use standard styles.

Wear simple clothes.

2. More clothes may be made at home. Old clothes may be made over.

3. More attention to repair and daily care of clothes.

Items which must be guarded—Savings.

How saving for themselves will help Uncle Sam.—Buy War Saving Stamps.

Why it is easy to save by means of W. S. S.

1. They can save in small amounts.
2. It is convenient to get the stamps.
3. Even the children can save for thrift stamps.
4. They will get back more than they put in.

Method of Presentation

What will help the Martins to cut down on clothing?

Similarly discuss economy in house-keeping items like fuel, wages, personal gratifications, etc.

If the Martins are looking forward to educating their children, which items especially will they need to guard?

How can the Martins save for their own future and at the same time help Uncle Sam?

How do W. S. S. make it easy for the Martins to save?

Teacher explains the system of W. S. S.

Now I will show the chart that Mrs. Martin is using for her household expenses.

Teacher outlines on board a form to be used for the household budget and accounts. The students are urged to copy these charts and explain them to their parents and report.

Household Accounts

Week beginning.....	Name.....	
On hand at beginning of week.....		\$.....
Received.....		.....
.....	
.....	
Total.....		.....
Budget planned:		
For food.....		.....
Rent.....		.....
Clothing.....		.....
Running Expenses.....		.....
Sundries and Savings.....		.....
Total.....		.....

How money was spent

FIRST DAY		SECOND DAY		THIRD DAY	
Article	Cost	Article	Cost	Article	Cost
.....
.....
.....

FOURTH DAY		FIFTH DAY		SIXTH DAY		SEVENTH DAY	
Article	Cost	Article	Cost	Article	Cost	Article	Cost
.....
.....
.....

WEEKLY FOOD EXPENSES		TOTAL WEEKLY EXPENSES	
For—	Amount	For—	Amount
Bread, cereals.....	\$.....	Food.....	\$.....
Meat, fish, eggs.....	Rent.....	.....
Milk, cheese.....	Running expenses.....	.....
Fruit, vegetables.....	Clothing.....	.....
Butter, butterine.....	Sundries.....	.....
Sugar, sirup, etc.....	War Savings Stamps.....	.....
Cocoa, tea, coffee.....		
Other foods.....		

Summary

	Amount		Amount
Money on hand at beginning of week.....	\$.....	W. S. S. Record.	
Total received during week.....	Owned, beginning of week....	\$.....
Total money for use.....	Bought during week.....	.....
Total money spent.....	Owned, at end of week.....	.....
Balance on hand for next week.....		

DRAMATIC EXERCISE—"OUR BUDGET"

The exercise requires 11 girls. One girl represents the income (" \$100 per month") and recites the first and last verses. Each of the remaining ten girls represents a ten dollar bill. Four girls represent the expenditure for food; two girls clothes; two girls rent; one represents running expenses and one sundries.

One girl in each group recites the appropriate verse and carries the poster, which indicates the amount which must be set aside for that item. The back of the posters may be decorated with flags, and the girls who do not carry posters may carry flags. When the income girl says "Uncle Sam" in her last speech, posters may be turned about and flags flourished for emphasis on the patriotic lesson involved.

The income figure and the amounts set aside for the different items may be changed to suit any community.

Income: \$100 per month

\$20

For a family of five
I'm the average income,
In these hard times
That's a very small sum,
So I must be divided
To the very last cent,
Among food, clothing, running ex-
penses,
Sundries, and rent.

We're the two tens
That are needed
To pay for the rent,
Think of us when you plan
How your money must be spent.

\$10

Each one of the girls,
Whom soon you shall see,
Represents ten dollars
Or one-tenth of me.

For running expenses
Like heat and light,
One ten must be allowed
To come out right.

\$10

\$40

Now put us aside,
For food we must go,
I know it is high
The war makes it so.

I am for sundries,
Such as carfare and recreation
Also War Savings Stamps,
Buy more and help the nation.

Income: \$100 per month

\$20

For clothes, two tens
Is all we can spare,
That means we must clean,
And press, and repair.

When you figure and plan,
And sacrifice and divide
Into these four items,
And savings beside,
You are lined up with Uncle Sam,
You have helped to win the war.
Now won't you make a budget,
If you never have before?

JELLY MAKING WITH SUGAR SAVERS

LUCILE WHEELER ADAMS AND ETHEL LOFLIN

Experimental Kitchen, United States Food Administration

The scarcity of sugar was felt most keenly at the very time when the housekeeper needed it for canning and preserving the ripening fruits. Sugar savers were sought to supplement the small allowance of sugar. Canning without sugar and drying were possible, but for the jams, butters, and jellies, sugar was wanted. The various sweeteners such as honey, cane sirup, glucose, corn sirup, sorghum lent themselves to preserves of all kinds without much questioning on the part of the housekeeper while successful results in jelly making were more uncertain. Although jelly making is not generally considered an economical method of saving fruit and sugar since it uses only the juice of the fruit and larger proportions of sweetener than the other fruit preparations, it may be of interest to give some of the results obtained in experiments with various sweetening agents. They may be of help to those making small amounts of jelly with one extraction of juice and using the fruit pulp in butters or jams. The work is not considered complete but is offered only as a suggestion to those not having time to try the various substitutes¹ themselves and to others for comparison with results obtained in their laboratories.

EXPERIMENTAL WORK

The experiments were with apple juice which was taken as a basis for the work. The same variety of apples and the same concentration of juice were used throughout the work. All materials were weighed.

Method of extractions. Hard green apples were used. They were washed and sliced. One and one-half pints of water were added to each quart of apple and the fruit cooked until it was soft, then strained through a jelly bag. One quart of fruit gave a yield of about one pint of juice.

I. A series of experiments was carried out to show the yield of jelly when varying amounts of sugar were used, also to show variations in texture and determine what basis should be used when substituting other sweeteners for sugar.

¹ Although the sugar shortage is over for the present it is quite possible that later we may need to return to the use of these substitutes to some extent.—EDITOR.

Sugar used with one cup of juice

NUMBER	SUGAR		TEMPER- ATURE	APPROX- IMATE YIELD	REMARKS
	<i>cups</i>	<i>grams</i>	<i>deg. C.</i>	<i>cc.</i>	
1			101	30	Thick. Sirup rather than jelly
2	$\frac{1}{4}$	50	102	85	Dark, tough and rather leathery. Ratio sugar to yield 1.7
3	$\frac{1}{2}$	100	102	135	Much better texture and color lighter. Ratio sugar to yield 1.35
4	$\frac{3}{4}$	150	102	205	Color lighter and very tender. Ratio sugar to yield 1.36
5	1	200	102	280	Color about the same as for No. 4—very tender. Ratio sugar to yield 1.4

The results merely confirmed facts already known, namely, that increasing the sugar increases the yield, and up to a certain point improves the texture and color of the jelly. The increase in sugar was not carried to the point of affecting the jellying properties to the extent that a sirupy product resulted.

The basis, 1 cup of sugar to 1 cup of juice, was considered to give too sweet a product for either normal or wartimes, $\frac{3}{4}$ cup of sugar was probably the best from all standpoints of yield, texture, flavor, and economy, while the $\frac{1}{2}$ cup of sugar basis was advocated for all instances where the saving of the greatest amount of fruit was desired and the scarcity of sugar was a strongly felt factor.

The sugar savers, sorghum, honey, corn sirup, and commercial glucose are much heavier than the same measure of sugar. In substituting for sugar it seemed best to substitute on the basis of total solids contained in the sweetener rather than substitute the amount necessary to give equivalent sweetness. This keeps the ratio between juice and added solids more nearly equal to the ratio between juice and sugar. It also is desired as meaning greater economy. If the substitution is done on this basis, the sugar is replaced by only a slightly greater weight of sirup whereas if one cup of sugar, approximately 8 ounces, is replaced by the amount of corn sirup, for example, required to give equivalent sweetness it means using 18 ounces or more. In estimating the measure of sugar saver to use, it is found 0.75 cup glucose, 0.78 cup corn sirup, 0.79 cup honey, 0.85 cup sorghum contain total solids equivalent to one cup of sugar. With the exception of sorghum this is approximately $\frac{3}{4}$ cup of the material. This is the measure used in all of the experiments. Honey substituted on this basis gives a product equivalent to a sugar product in sweetness while corn sirup and glucose gives one less sweet.

If it is desired to replace 1 cup of sugar (200 grams) by commercial glucose, 250 grams or $\frac{5}{4}$ cup is used.

If $\frac{1}{2}$ cup of sugar (100 grams) is used to 1 cup of juice and 50 per cent substitution is made, 50 grams of sugar and 62.5 grams of glucose ($\frac{1}{4}$ of 250) are used.

If 75 per cent substitution is made, 25 grams of sugar and 94 grams of glucose ($\frac{3}{8}$ of 250) are used.

If 100 per cent substitution is made 125 grams of glucose ($\frac{1}{2}$ of 250) are used.

Sugar-saver equivalent of 1 cup of sugar

MATERIAL	PER CENT WATER	WEIGHT OF ONE CUP	SOLIDS IN ONE CUP	EQUIVALENT OF ONE CUP OF SUGAR	
				Grams	Cups
Sorghum.....	30*	335	234	285	0.85
Honey.....	25*	337	252	266	0.79
Corn sirup.....	22.†	332	259	258	0.78
Glucose.....	19.5†	332	265	250‡	0.75§
Corn sugar.....		200	200	200	1.00
Sugar.....		200	200	200	

* Maximum water content allowed in "Standard of Purity of Food Products," Circular No. 19.

† Figures obtained from analyses.

‡ $\frac{\text{Weight of 1 cup of sugar}}{\text{Weight of solids in 1 cup of sugar saver}} = \frac{200}{265} = 0.75$.

§ $332 \times 0.75 + = 250$.

II. Glucose was substituted for sugar in amounts ranging from 50 per cent to 100 per cent on three pre-war bases: (a) $\frac{1}{2}$ cup sugar to 1 cup of juice, (b) $\frac{3}{4}$ cup sugar to 1 cup of juice, (c) 1 cup sugar to 1 cup of juice.

Glucose used as substitute

AMOUNT OF SUBSTITUTE	SUGAR		SUGAR SAVER		TEMPERATURE	REMARKS
(a) Basis $\frac{1}{2}$ cup sugar to 1 cup juice						
per cent	grams	cups		grams	cups	deg. C.
50	50	$\frac{1}{4}$	Glucose	62.5	$\frac{1}{2}$	102
75	25	$\frac{1}{8}$	Glucose	94.0	$\frac{1}{4}$	102
100			Glucose	125.0	$\frac{1}{2}$	102
						Good,—not so tender as jellies with more sweetening
						Good,—not so sweet as above but very acceptable
						Good texture but a little more firm than above,—not sweet enough

(b) Basis $\frac{3}{4}$ cup sugar to 1 cup juice

50	75	$\frac{3}{8}$	Glucose	94.0	$\frac{1}{4}$ —	102	Good,—sweet enough, quivers,—stiff enough
75	38	$\frac{1}{8}$	Glucose	130.5	$\frac{3}{8}$	102	Sweet, less than one above. Tender, darker than above,—too stiff
100			Glucose	187.5	$\frac{5}{8}$	102	Not sweet enough and slightly tough

(c) Basis 1 cup sugar to 1 cup juice

50	100	$\frac{1}{2}$	Glucose	125.0	$\frac{3}{8}$	102	Not stiff enough,—too sweet,—does not hold shape. Lighter color,—better than $\frac{3}{4}$ cup.
75	50	$\frac{1}{4}$	Glucose	187.5	$\frac{2}{4}$	102	Quivers beautifully,—color just about the same. Too sweet
100			Glucose	250.0	$\frac{3}{4}$	102	Quivers, but stiffer. Color slightly darker than above. Too sweet

III. Honey was substituted for sugar as in the preceding experiment with glucose.

Honey used as substitute

AMOUNT OF SUBSTITUTE	SUGAR	SUGAR SAVER	TEMPERATURE	REMARKS
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(a) Basis $\frac{1}{2}$ cup sugar to 1 cup juice

per cent	grams	cups		grams	cups	deg. C.	
50	50	$\frac{1}{4}$	Honey	62.5	$\frac{1}{8}$	103	Good,—very slight honey flavor Texture good
75	25	$\frac{1}{8}$	Honey	94.0	$\frac{1}{4}$ —	103	Honey more pronounced,—very sweet
100			Honey	125.0	$\frac{2}{8}$	104	Honey strong. Texture better than 100 per cent glucose. Sweet enough

(b) Basis $\frac{3}{4}$ cup sugar to 1 cup juice

50	75	$\frac{3}{8}$	Honey	94.0	$\frac{1}{4}$ —	104	Stiff at 104°. Darker than glucose in color,—cuts well, and holds its faces,—flavor slight of honey,—not noticeable
75	38	$\frac{1}{8}$	Honey	130.5	$\frac{3}{8}$	104	Jelly rather firm. Darker and flavor of honey stronger. Sweet enough
100			Honey	187.5	$\frac{1}{2}$		Honey strong. Color darker, and texture firm

(c) Basis 1 cup sugar to 1 cup juice

50	100	$\frac{1}{2}$	Honey	125.0	$\frac{1}{2}$	104	Honey noticeable,—too sweet,—more tender, nice and quivery
75	50	$\frac{1}{2}$	Honey	187.5	$\frac{1}{2}$	104	Quiver good,—very strong of honey—color about same, too stiff (?), too sweet
100			Honey	250.0	$\frac{3}{4}$	104	Color darker and texture more firm, honey flavor strong. Too sweet

IV. Since it is sugar which must be used sparingly and not fruit, it is probably preferable to secure a less sweet jelly having more of the fruit flavor. It was also thought that more often the error lies in the addition of too much sugar to fruit juice, because the fruit juice is less concentrated as used by many housekeepers.

For this reason, when sorghum and corn sugar were used, the entire series of experiments was not repeated and the substitution was done on the basis of $\frac{1}{2}$ cup of sugar to 1 cup of juice.

*Sorghum used as substitute*Basis $\frac{1}{2}$ cup sugar to 1 cup juice

AMOUNT OF SUB- STITUTE	SUGAR		SUGAR SAVER			TEMPER- ATURE	REMARKS
	grams	cups		grams	cups	deg. C.	
25	75	$\frac{3}{4}$	Sorghum	31.0	$\frac{1}{16}$	103	Good,—no flavor of sorghum
50	50	$\frac{1}{4}$	Sorghum	62.5	$\frac{1}{8}$	103	Flavor of sorghum not distinguished. Texture slightly tough
75	25	$\frac{1}{8}$	Sorghum	94.0	$\frac{1}{4}$	104	Color much darker,—flavor not objectionable but fruit flavor concealed
100			Sorghum	125.0	$\frac{1}{2}$	104	Much darker, slightly tougher, flavor of fruit concealed, but one would hardly recognize presence of sorghum. The jelly point rises with the increase in sorghum

Individuals tasting the jelly made with sorghum alone could not tell what caused the flavor, that is, the sorghum flavor was not pronounced while the delicate flavor of the apple was masked. It was called by some—a “commercial jelly” because it was as nondescript as many of those on the market. This would vary, of course, with fruits of more pronounced flavor.

Probably with sorghum only 50 per cent substitution should be advocated for jelly making.

V. Corn sugar. Corn sugar was substituted for sugar on the basis of weight for weight.

Corn sugar used as substitute

Basis $\frac{1}{2}$ cup sugar to 1 cup juice

AMOUNT OF SUB- STITUTE	SUGAR		SUGAR SAVER			TEMPER- ATURE	REMARKS
	grams	cups		grams	cups		
per cent						deg. C.	
50	50	$\frac{1}{4}$	Corn sugar	50.0	$\frac{1}{4}$	104	Color darker, but flavor and texture good
75	25	$\frac{1}{8}$	Corn sugar	75.0	$\frac{3}{8}$	104	Color still darker but no noticeable flavor due to corn sugar
100			Corn sugar	100.0	$\frac{1}{2}$	104	Color darker. Bitter objectionable flavor

VI. Grape jelly, replacing 50 per cent of the sugar by some other sweetener

(1) Basis $\frac{1}{2}$ cup sugar to 1 cup juice

AMOUNT OF SUB- STITUTE	SUGAR		SUGAR SAVER			TEMPER- ATURE	REMARKS
	grams	cups		grams	cups		
per cent						deg. C.	
	100	$\frac{1}{2}$				103	Good—very strong of grape, texture very tender. Very dark
50	50	$\frac{1}{4}$	Honey	62.5	$\frac{1}{8}$	103	Very good texture—color very dark—slight flavor of honey
50	50	$\frac{1}{4}$	Glucose	62.5	$\frac{1}{8}$	102	Good—clearer than with honey or sorghum—about the same as all sugar but not so sweet
50	50	$\frac{1}{4}$	Sorghum	62.5	$\frac{1}{8}$	103	Very good—no taste of sorghum—color darker

Grape and apple jelly, replacing 50 per cent of the sugar by some other sweetener

(1) Basis $\frac{1}{2}$ cup sugar to 1 cup juice ($\frac{1}{2}$ apple, $\frac{1}{2}$ grape)

50	50	$\frac{1}{4}$	Honey	62.5	$\frac{1}{8}$	103	Very good, tender, color better, and held shape better than all grape
50	50	$\frac{1}{4}$	Glucose	62.5	$\frac{1}{8}$	102	Very good,—about the same as above but not quite so sweet
50	30	$\frac{1}{8}$	Sorghum	62.5	$\frac{1}{8}$	103	Good,—no apparent change due to sorghum,—no strong flavor. Texture good

VII. *Cranberry and apple jelly*

Basis 50 per cent substitution with various proportions of sugar to juice

PROPORTIONS OF SUGAR TO JUICE	SUGAR		CORNSIRUP		TEMPERATURE	REMARKS
	grams	cups	grams	cups		
$\frac{1}{2} : 1$	50	$\frac{1}{4}$	625	$\frac{1}{8}$	103	Jelly fairly firm, retains shape. Color good, flavor good
$\frac{3}{4} : 1$	75	$\frac{3}{8}$	94	$\frac{1}{4}$	103	Not quite firm enough for high mold. Color good. Flavor better than other
1 : 1	100	$\frac{1}{2}$	125	$\frac{3}{8}$	103	Too soft to hold. After longer standing would have been firm enough. Too sweet. Color good. Probably higher temperature better

RESULTS

I. Honey, glucose, light corn sirup and dark corn sirup,, sorghum, or corn sugar may be used in jelly to replace part or all of the sugar. A statement often made that long boiling of cane sugar with fruit juice brings about inversion of the sugar and interferes with the texture of the product has had too much stress put upon it, since the use of 100 per cent glucose and 100 per cent honey as sweetening agents (meaning the addition of large amounts of simple sugars) has not prevented a satisfactory jelly being obtained.

II. As the proportion of sweetener increases the yield is increased and the jelly becomes more tender.

III. Where all of the sugar is replaced by other sweeteners, the product is darker in color and the texture is slightly less tender. The yield varies with the different fruits but is always equal to or greater than for sugar.

IV. The jelling point of the various sweeteners varies, glucose having the lowest jelling point and honey the highest.

V. Glucose and corn sirup change the flavor of the fruit little or none; 50 per cent honey is just barely perceptible and combines well with most fruit flavors. More than 50 per cent gives a distinct honey flavor (which is acceptable and desired by many people). The other sweeteners modify the fruit flavor very slightly and in combining with a strong flavored fruit are not noticed.

VI. The sweetening power of the various sirups varies, glucose and corn sirup having the least and honey the greatest. However, all of them produce a very acceptable jelly.

VII. The substitution which is recommended for the majority of cases is 50 per cent, although with apple juice of rather high sugar content 75 per cent is satisfactory. Fifty per cent substitution gives a sweet product of good texture and color without the characteristic flavor of the sweetener being pronounced or objectionable.

THE FOOD OF PRISONERS OF WAR

When a soldier of the United States Army is reported "missing in action," it may mean anything—that he was killed; that he was severely wounded; that identification was for the time impossible; or that he was taken prisoner.

As soon as a man is reported missing the Bureau of Communication of the American Red Cross starts an inquiry, through the International Red Cross in Geneva, to locate him, and, if he is alive, establishes communication between him and his people. If the man is a prisoner of war in a German stockade, all activities pertaining to him are carried on through the Bureau of Prisoners' Relief that is closely allied with the Bureau of Communication. Together they are bringing much consolation to prisoners and their families and friends alike.

The Bureau of Prisoners' Relief concerns itself with supplying American prisoners with food and clothing, with the forwarding of money and mail to the prisoners, and correspondence with families of prisoners. As soon as the prisoner is located the American Red Cross begins its service to him. Lists of American prisoners in Germany are eventually given out by the German government and these are sent by the Spanish Ambassador in Berlin to the American Minister in Berne, but the International Red Cross is generally able, with the assistance of the German Red Cross, to secure the names some days, and often weeks, in advance of the official lists, and the various belligerent governments accept these Red Cross lists as official. The Germans often permit prisoners to send cards to their families announcing that they have been captured. When the prisoners reach permanent camps the Prisoners' Help Committee, composed of American prisoners, is permitted to send a postal card to the American Red Cross in Berne so that the regular food sup-

plies may be sent without delay. Just as soon as names reach either the International Red Cross at Geneva, or the American Red Cross at Berne, or the British Red Cross in London (as sometimes happens when Americans have been serving with English or Canadian troops), they are cabled to the American Red Cross in Washington.

The Bureau of Communication then transmits the names officially to the State, and the War or Navy Departments, notifies families by telegraph, and follows this telegram with a letter, giving whatever further information may be known, such as the name of the prison camp and the condition of the man. It also explains in a few words the purpose of the Bureau of Prisoners' Relief, and directs that all further communication be sent to that Bureau.

In Berne, Switzerland, the American Red Cross maintains a warehouse stocked with food and clothing for American prisoners by the American Red Cross and by the Quartermaster General's Department of the United States Army and Navy. Another warehouse is maintained at Rennes and a reserve warehouse in Copenhagen. In the Berne warehouse, alone, at the present time there is sufficient food, clothing, and comforts to supply 10,000 American War prisoners for a period of six months.

Every week a twenty pound parcel of food is sent to each American prisoner in a German camp. The War Department supplies new uniforms and necessary clothing for the soldiers, but, in the case of officers it has not been able to do so and in order to supply the need, the American Red Cross purchased a tailor shop in Paris and is sending new uniforms to the imprisoned American officers at the rate of twelve a week.

Each 20-pound parcel contains about the articles of food given below, with some variation from week to week, while extras, such as hard candy, eating chocolate, and so on, are added from time to time. During the four weeks there is sent: corned beef, 8 pounds; roast beef, 6 pounds; salmon, 6 pounds; corned beef hash, 8 pounds; pork and beans, 12 tins; dried beans, 2 pounds; corn, 4 pounds; peas, 4 pounds; tomatoes, 4 pounds; hard bread, 20 pounds; rice, 2 pounds; evaporated milk, 1 quart; butter, 1 pound; sugar, granulated, 4 pounds; coffee, 2 pounds; cocoa, $\frac{1}{2}$ pound; jam, 2 pounds; prunes, 2 pounds; raisins or figs, 1 pound; table salt, 1 pound; pepper, $\frac{1}{4}$ pound; vinegar, 1 pint; chocolate or candy, 1 pound; soap, 2 bars; cigarettes (or equivalent in tobacco) 400.

Tobacco is sent all prisoners, and luxuries such as jam, chocolate, hard candy and chewing gum, as well as soap, razors, toilet articles,

towels, tooth paste, and other necessities. Magazines and other periodicals, published prior to America's entrance into the war, are also supplied, but newspapers are barred as well as current literature. These parcels, with the exception of a negligible percentage, are acknowledged by the prisoners, a self addressed card for this purpose being enclosed with each food parcel. With the first parcel sent, the prisoner is asked, in addition to sending the receipt card, to report the size of his shoes, hat, coat, trousers, shirts, gloves, underwear, pajamas, so that he can be supplied with clothing that will fit him. If any signature acknowledging the receipt of the parcels looks suspicious, the original card is immediately sent to the Bureau of Prisoners' Relief at the Headquarters in Washington to be identified by the soldier's relatives or friends. Frequent tests of signatures, however, show that the shipments are reaching their destinations and that the prisoners are enjoying the contents.

A special ration approved by the Secretary of War is sent to the sick and invalid prisoners. This includes: Potted chicken, 2 ounces, with alternates of potted veal or beef, dried beef, beef tongue, canned salmon, dried eggs, or American cheese. Potatoes, dehydrated, $1\frac{1}{2}$ ounces, or rice, macaroni, or hominy grits. Crackers, 8 ounces, or zwiebach. Oleomargarine, 1 ounce, or nut margarine or peanut butter. Soup, compressed, $1\frac{1}{2}$ ounces. Spinach, dehydrated, $\frac{1}{2}$ ounce, or tomato. Oatmeal, $\frac{4}{5}$ ounce, or farina or barley. Sugar, 2 ounces, or in place of not more than half of it, corn syrup or honey. Milk powder, 2 ounces, or fresh milk or malted milk powder. Prepared cornstarch pudding, $\frac{4}{5}$ ounce, or tapioca or sago pudding or gelatine preparations. Dried apples, 1 ounce, or apricots, prunes, peaches, figs, dates, or fresh fruit, or jam and marmalade. Chocolate, sweet, 1 ounce, or cocoa. Beef extract or bouillon cubes, $\frac{1}{5}$ ounce. Coffee (soluble) $\frac{2}{5}$ ounce, or tea. Bran, $\frac{3}{10}$ ounce, or agar agar. Salt, $\frac{7}{10}$ ounce. Pepper, $\frac{4}{10}$ ounce. (The amounts given are for the daily supply. The amounts of the alternates are somewhat different in several cases, but calculated to give the same food value.)

All the food and clothing,—everything, in fact, that is given to the Americans in German prison camps is purchased in the United States and shipped overseas.

FOR THE HOMEMAKER

THE PRESENT FOOD SITUATION

EXTRACTS FROM MR. HOOVER'S ADDRESS TO THE FEDERAL
STATE FOOD ADMINISTRATORS, NOVEMBER 12, 1918

We have now to consider a new world situation in food. We have to frankly survey Europe, a Europe of which a large part is either in ruins or in social conflagration; a Europe with degenerated soils and depleted herds; a Europe with the whole of its population on rations or varying degrees of privation and large numbers who have been under the German heel actually starving. We have also to survey the situation in the exporting nations of the world, to see what can be done to redeem this mass of humanity back to health and to social order. Within thirty or sixty days the world should begin to release cargo ships from military duty and to send them further afield for food, and before the next harvest arrives the entire world's food supply should be accessible. On the other hand, the cessation of hostilities will create an enormously increased demand for food. We have computed the export countries' supplies on the basis of the avoidance of waste and we have assumed for the importing countries stringent war consumptions with additions such as we consider will preserve health and order. In these circumstances we make the world's balance sheet in the different great groups of commodities approximately as follows until next harvest. It must be remembered that all such calculations are based upon assumptions as to transportation, production, and consumption which may be subject to great disturbance and distortion during the reconstruction period, but for the present we can accept these conclusions.

Wheat and Rye: Sufficient supplies with economy in consumption.

High Protein Feeds (for dairy animals): A shortage of about 3,000,000 tons.

Other Feeds: Sufficient supplies with economy in consumption.

Beans, Pease and Rice: Sufficient supplies with economy in consumption.

Pork Products, Dairy Products, Vegetable Oils: A shortage of about three billion pounds.

Beef: Sufficient supplies to load all refrigerating ships' capacity.

Sugar: Sufficient supplies for our normal consumption if other nations retain their present short rations. A shortage if they increase their rations.

Coffee: A surplus.

Of all these foods, except possibly protein feeds, we have a sufficiency for our own people and in many of them, large surpluses. Of the world total we are estimating that North America will furnish rather more than 60 per cent and that the United States, including the West Indies, will need to supply about 20,000,000 tons of food of all kinds for export against our pre-European war exports of say 6,000,000 tons.

It can be done. Even in Belgium where the supplies of the Relief Commission have been the only resource, the health of the population has been maintained; the death rate shows it. We have larger resources, a more varied diet; it will not be necessary for us to depend on a daily dole of stinted rations. But it is necessary to make every ounce of food count, every morsel contribute its last bit of nourishment.

The shipment cannot be made by shifting from one food to the other. All food must be saved. The surplus cannot be created by eating corn instead of wheat; the corn also is needed—we cannot dip very much into the supply of feed for animals, because it is in the same boat with bread grains.

Relying on food supplies out of the ordinary will help some, but it will not solve the problem. Rabbit stew, eggs, oysters, nuts and raisins, used instead of meat, somewhat increase the general stock, and so far the substitution is all to the good. But that will not accomplish the main purpose.

Calculations show that 95 per cent of our sustenance is from staples. We cannot make up the enormous deficit in staples from the fringe of food stuffs. The main reliance is always on staples and the main saving must be made in staples.

There is one policy which cannot change, and that is the vital necessity to simple living, to economy in all consumption, for commodities more or less substitute for each other. We must realize that the spectre of famine abroad now haunts the abundance of our table at home.

HOME GROWN FOODS

The Food Administration asked that every dish served in American hotels, restaurants, clubs and other public eating places on Thanksgiving Day be made from home-grown products. This is a plan that should be followed as far as possible, not only in public eating places but in the home, not only for Thanksgiving but for Christmas, and for every day between. Even though the heavy demands of war upon our transportation have lessened, there is still need for enormous shipments of food and other materials, if we are to fulfill our obligations to the world. This is one case where to be locally minded is to be internationally minded.

WHEAT BREAD AND THE WORLD'S FOOD

When Germany laid down her arms, the Inter-Allied Food Council in London was discussing the possibility of diminishing by January 1 the percentage of substitutes used in wheat bread in all Allied countries, because of the new situation created by the signing of the Austrian armistice, and the consequent greater safety of the Mediterranean Sea routes, with the increased accessibility of the Indian and Australian wheat supplies.

All regulations requiring the use of wheat substitutes in baking are now suspended and the white loaf may return to its own. But let there be no misunderstanding. This does not mean that bread may be used freely. The greatest economy must still be exercised. It does mean that Indian, Australian, and Argentine wheat are available for Europe, and that the "substitutes" we have been using and exporting are badly needed for dairy feeds both here and abroad. By using wheat in place of these we also set free for animal food more of the bran and other wheat "offals" that furnish necessary "high protein" feed of which there is a great shortage.

In withdrawing the substitute regulations, the Food Administration emphasizes the necessity for continued conservation of all staple foods. This country will be called upon in the coming year to send at least

20,000,000 tons of foodstuffs to Europe—practically the limit of loading capacity at our ports.

At the end of October we were told that “the sternest task yet set for the people of the United States is the shipment, this crop year, of $17\frac{1}{2}$ million tons of food. That means saving—saving hard, saving every day and every meal the year around. It means scientific saving in each household, that it may be done without impairing the health or strength of our people—and all from the stock of food now in hand.

Now we are asked to add to this an additional $2\frac{1}{2}$ million tons.

FOOD IN FRANCE DURING THE LAST DAYS OF THE WAR

Dr. Vernon Kellogg who has been in France for the Food Administration writes, “I have now been in France three weeks, eating in restaurants and hotels of all grades, and I have had butter on the table once, and a total of six lumps of sugar. Saccharine is universally used in coffee and tea. The small sugar ration is chiefly reserved for cooking.”

Food conditions outside the area under military control, which after all is a very small part of France, are very bad. The civilian population must pay the same prices for food as the soldiers, or they must go without. In the industrial centers where almost everyone has been engaged in war work, and has received high wages, they can keep up with the high cost of living, but in the smaller town and all through the country districts the people fare very badly indeed.

They can no longer afford butter or cheese; and meat is now beyond their highest aspirations. Even potatoes, upon which they could depend in the past, are so high in price, owing to the bad crop this year, that many people cannot buy them at all.

Practically the only food which everybody can afford is bread, for the price of bread has been kept low by a Government subsidy. Bread, however, is rationed, and the ration is far from sufficient to make up for the lack of other foods. Moreover, the fact that bread is rationed, and that each person has a card entitling him to 10 ounces a day, does not

mean that when he presents his ticket at the door of the bakery, he is sure to receive 10 ounces. In many places last summer, the ticket brought in exchange only half the promised quantity—and in other places none at all.

A letter from a traveller through the more remote districts of France says, "I have just visited several villages in Auvergne, a mountainous district where transport is difficult. In one village there had been no bread for three weeks; people were eking out their meagre diet from fast failing supplies of potatoes. In another of these villages we found bread, but it was very black, had a distinct odor, and was almost impossible to swallow.

"They told me it was made of chestnut flour with some oats and barley and a little buckwheat added. That was what they had been living on for five weeks."

THE PRICE OF SUGAR

The household sugar ration and retail prices in various countries at the latest date available on November 1, 1918, show that the United States is much better off than any other country so far as the amount available is concerned, and that only in Germany is the price lower. Because Germany produces her own sugar crop, and has made strict regulations as to its disbursement, and has been able to use the residues in producing fat, she has kept the price to 7 or 8 cents a pound. Her ration has been 1.4 to 1.6 pounds. In Austria-Hungary, with a similar ration, the price is 21 to 54 cents. In Turkey it is \$1.77 to \$5.05 a pound.

The retail price in the United States averages 10.5 cents a pound, and at present there are 3 to 4 pounds a month available. England uses 2 pounds a month at a cost of 14.1 cents a pound; Canada has 2 pounds a month at 11.2 cents a pound; France has 1.1 pounds, and Italy 0.7 pounds a month, at a cost respectively of 18.4 to 19.3 and 19.9 to 35.4 cents a pound.

Norway and Holland have 2.2 pounds costing 13.3 and 12.9 cents a pound; Switzerland uses 1.1 pounds at a price of 15 cents; Argentina pays 16.2 cents, and Spain 21 to 26 cents a pound.

We have the largest supply in the world. This is not greediness, for we have throughout the war asked the Allies to supply themselves first and we would do with the remainder. They have sacrificed sugar to provide ships for other purposes. If Europe continues on present rations, the world supplies, enlarged by Java sugar now available, are sufficient so that we can continue our present consumption. If Europe raises its ration very considerably, there will be a shortage.

THE CHICAGO FOOD CONSERVATION BUREAU

MRS. CHARLES A. MUNROE

The kitchen is the housewife's trench!! If every woman could have realized the importance of intelligent food conservation and the fact that the foods the government asked us to use could be made most palatable if properly prepared—how great her share in the winning of the war! and in the adjustments for peace!

Yet the scientific planning of meals from the dietetic standpoint is probably the least interesting subject in the world to the average woman.

It is trying enough to have to plan three meals a day, day in and day out, year in and year out, without having to think of the proper balancing of meals, making one's family do without the food they have always been accustomed to use, and giving them in its place the poorly prepared substitutes they are constantly complaining about. Yet the time has come when we all have to become Kitchen Patriots and learn how to conserve intelligently and at the same time be properly nourished and comparatively comfortable in mind and body.

Realizing the urgent need for a great central kitchen and demonstration station where practical lectures and food demonstrations would teach the puzzled housewife how to conserve properly, a number of patriotic women, early in May of this year, united on a plan to accomplish this end, and sent in writing to Mr. Harry Wheeler, Food Administrator for Illinois, to Mrs. Joseph Bowen, Chairman of the Women's Committee of the State Council of Defense, and to Miss Isabel

Bevier, Chairman of Conservation for Illinois for the Food Administration, a statement of their proposed organization.

On the 15th of May their plans for a centrally located Bureau, free to the public and to be maintained for the duration of the war, were accepted and the writer was given the appointment of Conservation Chairman. To secure the proper headquarters and an able committee of women, were the next important steps. Everyone interested realized the urgent need and necessity of rushing this food conservation organization and there was splendid response and coöperation in every direction, for this seemed to be the psychological moment to undertake this work.

Mrs. Cyrus Hall McCormick became Honorary Chairman, and a large committee of women rallied to our support, giving monthly pledges, and donations for the financing of the Bureau, so that the general public might have the latest and most accurate information on food conservation. Through the kindness of a neighborhood department store, the large airy rooms we now occupy at 28 South Wabash Avenue, were loaned for the work and almost the entire equipment for every department in the store was donated by generous citizens.

On the first of June the Bureau was formally opened with a representative of the United States Food Administration in charge of the Information Desk near the door, where thousands of tested recipes and government pamphlets are given away each week. At this information desk, there are also two domestic science experts ready to answer questions pertaining to the new food problems.

In order to make more tempting the food conservation dishes and at the same time instruct the housewife in a very practical way, the model kitchen, fully equipped with gas stove, ice-box, and the usual kitchen paraphernalia was also installed—and here at 11:00 and 2:00 o'clock daily, the lectures and demonstrations by trained women are held. Every important food drive of the United States Food Administration has been thoroughly explained from this platform. Some of the subjects covered during the first two months of the bureau's existence were:

One hundred per cent wheatless quick breads of every description, Canning, Dehydrating, Children's diet, Invalid cookery, Balanced meals for all ages, Meat substitutes, Uses of dairy products, Yeast bread made with minimum amount of wheat, Uses of fish, French and Italian conservation cookery, Wheatless pastry, Jellies, jams, and marmalades

without sugar, Seasonable salads to save the sweets, Vegetable cookery, Conservation of fuel.

The demonstrators in charge on the Model Kitchen platform, are of course, all home economics graduates. The three largest Home Economics Centers of Chicago, the University of Chicago, Lewis Institute, and the School of Domestic Arts and Science, all coöperate, sending us lecturers and demonstrators frequently. We also have had many visiting demonstrators from other cities who offered their services from time to time. We have also been fortunate throughout the summer in having six demonstrators from the States Relations Service, United States Department of Agriculture.

The third department in the Bureau is the experimental kitchen in charge of a master baker and domestic science expert. Here the recipes given away at the information desk were tested out, new combinations of sugarless, wheatless foods made every day, and the products of the bake oven in this kitchen sold in our model bake shop, with the hope of teaching the public that the wheat and sugar substitutes when properly prepared are very palatable. The baker works in full view of the public, who are permitted to ask questions.

During the first thirteen weeks we had an attendance of 35,521 people; almost all of them eager to learn, but many of them woefully ignorant of even the simplest measures to be employed for the proper food conservation. It has been most gratifying to see many of the same faces day after day and hear the expressions of approval over and over again of this free government cooking school. In order to reach all of the housewives of Chicago and in appreciation of the fact that many women cannot leave their own districts, plans are now being perfected for branch centers in every ward in the city.

KITCHEN TESTS FOR PECTIN IN JELLY MAKING

MINNA C. DENTON

Experimental Kitchen, Office of Home Economics, U. S. Department of Agriculture

The standard test for pectin, 1 tablespoonful of fruit juice plus 1 tablespoonful of grain alcohol (95 per cent), has now become impossible in many households since there are a number of states in which it is difficult or impossible to purchase grain alcohol except as a physician's prescription.

The following pectin test has been used by the writer and has been found more or less satisfactory with apple, crabapple, plum, quince, and cranberry juices. (Grape juice, however, behaved so differently that the test was valueless in this case.)

Proceed as follows: To 1 teaspoonful of dripped fruit juice add $\frac{1}{2}$ teaspoonful sugar and $\frac{1}{4}$ teaspoonful Epsom salts; stir until all are dissolved, then let stand five minutes. If the mixture sets into a jelly within this time, the juice is a good jellying juice, and may be sweetened and boiled at once, cooking rapidly until it begins to set or flake from the edge of the spoon. If the Epsom salt mixture fails to set into a solid sheet of jelly within a few minutes, then the juice needs to be concentrated by boiling before it is sweetened.

It may be added, that where wood alcohol can be purchased, it will serve for the pectin test instead of grain alcohol, and its action is more rapid than that of Epsom salts. Like grain alcohol it does not as a rule form a solid sheet of smooth jelly, but precipitates the pectin in smaller or larger clumps in the midst of a liquid juice which is expressed from the jelly clumps. In a good jellying juice, the pectin comes down in one large solid clump at once; in a poor juice (one in which the pectin is too much diluted), the clumps are smaller and more scattered. Wood alcohol is perhaps more likely to allow the re-dissolving of these precipitated jelly clumps in the surrounding juice, after some minutes' standing, than is grain alcohol. The wood alcohol test, unlike the Epsom salt test, can be used with grape juice as well as with other juices. The Epsom salt test as described above, if allowed to stand ten to twenty hours, is often more sensitive than the alcohol tests; too sensitive for the housekeeper's use, in fact, for even a very poor juice will often set in this length of time.

In case wood alcohol is used for the pectin test, it must be remembered that this is a poison and should be labelled as such and kept away from children.

Commercial denatured alcohol as bought at drug stores is in some cases at least, even more successful as a precipitant of pectin, than is the pure methyl alcohol of the laboratory.

THE MEANING OF THE WORD CORN

It is somewhat curious how differently the word "corn" is understood by different peoples. In the United States we generally mean by it simply maize or Indian corn; but the Scotch use it as meaning oats, and to most Englishmen an "ear of corn" suggests nothing but a head of wheat, while throughout the northern part of the European continent a "cornfield" is understood almost always as a field of rye.

If we turn to our Authorized Version of the Bible we find the word "corn" used in several interesting ways. It is said that Ruth coming to Bethlehem "in the beginning of the barley harvest" asked "to go into the field and glean ears of corn." But it was "in the time of the wheat harvest" that Samson burned "the standing corn of the Philistines" by tying firebrands to the foxes' tails. The humane statute of Moses "Thou shalt not muzzle the ox when he treadeth out the corn" undoubtedly applies to all the grain plants harvested by the Israelites. Finally, in the words of Jesus, "except a corn of wheat fall into the ground and die, it abideth alone" the meaning of corn is plainly *kernel*.

The dictionary tells us that the word first meant simply a hard, edible seed, grain, or kernel, and was applied especially to such kinds as were of most importance for food. From this it would be but a short step to speak of the plants which bore such kernels, as "corn plants" or "corn" in general. Then whichever of these plants was most familiar to a people naturally came to be known as "the corn" of that region, or simply as "corn," while those corn plants which were in less common use were distinguished by their separate names.—*Corn Plants*, by Frederick Leroy Sargent.

EDITORIAL

An Emergency Commission in Education. The following resolution should be of especial interest to those who have for many years urged the introduction of Food Courses into the schools. What persistent agitation for a long series of years has failed to bring about, the emergency of today seems to be about to accomplish.

This Commission of the National Education Association was appointed to represent the Association in mapping out a program for the "rebuilding of civilization through a war modified education." It has a membership of 29, seven of them women, including our own Miss Arnold, dean of Simmons College. The commission was organized in March, 1918, and has since held four meetings. Among the problems considered by it are: Higher salaries for teachers, adequate teacher training, a complete program of health and recreation, rural education, immigrant education, the education of adult illiterates, training for all forms of national service, the coördination of war service in the schools, the creation of a national department of education, and the extension of national coöperation with the states in strengthening the public schools.

Resolution

RESOLVED: That the N. E. A. Commission on the Emergency in Education and the Program for Readjustment during and after the War, in support of the agreement made with the U. S. Food Administration by the National Education Association at Pittsburgh, approves the work already done by the College Section of the Food Administration, and further urges upon schools throughout the country the form of coöperation which follows:

I. Emphasis of appropriate instruction concerning the uses of food and the consequent choice of food as related to health. To this end the plan of education provided by the Food Administration, in coöperation with the Bureau of Education and the Department of Agriculture, should be followed wherever possible.

II. Careful attention to all government messages concerning the food supply, and explicit instruction to the schools in the interpretation of these messages—whether extended through the press, by special bulletin, or by the specific request of the local Food Administration.

III. The organization of such routine as will enable the pupils to carry such specific messages to their homes—thus creating in the school system relay-stations for Government messages—state and Federal—and constituting every pupil a “Messenger for Uncle Sam.”

IV. Evert state, or county or municipality should arrange its own plan for carrying information. The important reaction upon the pupils who are thus recognized in this national service is not to be ignored in our estimate of this contribution.

The Commission hopes to secure an early response from every state with an assurance of coöperation. Definite suggestions as to plans will be welcomed.

(Signed) GEORGE D. STRAYER, *Chairman*,

L. D. COFFMAN, *Secretary*

October 9, 1918.

A Protest. Under the guise of saving material the manufacturers have put on the market this fall skirts that are a revival of a fashion that we had thought was gone forever. They are so narrow that it is practically impossible to take a long free step when wearing them, and to ascend a street car is to perform an athletic feat. That the excuse of saving material is only a pretense is shown by the fact that the narrow skirt is accompanied by an overskirt. A moderately full skirt would be more attractive and far more comfortable and safe, and use no more material.

The tendency to lengthen skirts should not go too far. It would be a calamity to go back to dresses that just cleared the ground. While the extremely short skirt is not to be commended, one that comes just below the tops of the boots is not immodest and is far more suitable for a business suit than one that must be lifted whenever one goes up stairs.

Delicate colors that require much labor if they are to be kept clean should be reserved for “occasions,” not introduced into every day garments intended for rough service.

Yokes, cuffs, collars, and waist linings, so far as possible, should be detachable so that they can be easily cleaned, and preferably made of washable material.

Work dresses for the house should be made with short sleeves with cuffs that may be buttoned on if desired.

The overheating of our houses has been partly responsible for the use of thin waists and transparent sleeves. With the present coal shortage these will not offer sufficient protection and are not suitable for most people. They are rarely economical.

Why can we not have sensible clothes upon the market? Clothes that are of such good lines and so simply made that they are attractive instead of grotesque even when they are not the "latest thing," clothes that depend for their value on quality of material and workmanship rather than on superfluous ornaments that have no relation to the lines of the garment or the beauty of the material, clothes that allow freedom of movement and are designed with reference to the lines of the body.

It is useless to say that women are themselves responsible for the styles. This is true only to a limited extent. Some, of course, will always desire the "newest thing." Upon many the style is forced because they cannot get anything else. Those who must buy ready made clothes take what is offered them, or go without. Even if a long search might reveal what they wish, time and effort are very precious today.

If only by some change of heart those who set the styles could make sensible dress fashionable, and keep it so, they would receive the gratitude of a large majority of women.

COMMENT AND DISCUSSION

The Journal of Home Economics:

In reply to the inquiry made in the May number of the JOURNAL regarding the relative advantages of arranging sewing and cooking on alternate days, semesters or years, I am enclosing a summary of our experience in the Ames Public Schools where we do the practice teaching in home economics.

GENEVIEVE FISHER,
*Director of Practice Teaching in Home
Economics, Iowa State College.*

An analysis of the various methods of arranging cooking and sewing in the high school program.

I. Alternate days:

Advantages: none.

Disadvantages: (a) Does not allow for work which should come on consecutive days. Numbers of problems in foods can well take two or three days to finish. (b) Breaks into the series of sewing units so that only the very shortest units can be finished.

II. Alternate groups of days as Monday, Tuesday, and Wednesday of the first semester for cooking; Thursday and Friday for sewing. The order reversed for the second semester.

Advantages: (a) Gives sufficient consecutive lessons to complete most food units. Left over food materials can be utilized. (b) Gives an opportunity for the seasonal changes in both the cooking and sewing. (c) Gives more time to cooking in the fall semester when fresh vegetables and fruits are plentiful. (d) Gives more time in the spring semester for sewing. (e) Gives more opportunity for home practice of the work taught at school. (f) The total week's work is less liable to cause physical fatigue if the girl's time is divided between cooking and sewing.

Disadvantages: (a) The constructive problem in sewing covers a long period of time and the pupils may grow impatient to complete it.

III. Alternate semesters: Advantages: (a) Gives more intensive work in both subjects. (b) Shortens length of time for a problem.

Disadvantages: (a) If provision is not made for reversing the order the second year, the course will not provide for seasonal changes. (b) The cooking may cause undue physical fatigue if the class is young.

IV. Alternate years.

Advantages: (a) Gives still more intensive work. (b) Gives seasonal changes.

Disadvantages: (a) Pupils are more liable to drop out at the end of the year and have but one type of work. (b) An entire year of cooking may be too fatiguing.

Conclusion. The choice seems to lie between the following two plans:

1. Alternate groups of days where the extra day in the fall is given to cooking, and in the spring to sewing.

2. Alternate semesters where provision is made for seasonal changes by reversing the order the second year. If careful attention is given to change from laboratory to recitation work, fatigue will not result.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Food and the War. A textbook for college classes. U. S. Food Administration in coöperation with the Department of Agriculture and the Bureau of Education. Boston: Houghton, Mifflin Company, 1918, pp. 369. \$0.80. By mail of the Journal, \$0.90.

Last spring there were issued from the Food Administration, with the coöperation of the Department of Agriculture and the Bureau of Education, a series of lessons for colleges and normal schools that were used in more than 500 institutions. The lessons consisted of 16 weekly lectures, of a second course including supplementary material that expanded the work into 48 lessons, and of a laboratory course.

The lessons were prepared by Dr. Katherine Blunt of the University of Chicago, Florence Powdermaker of the Department of Agriculture, and Elizabeth Sprague of the University of Kansas, with aid from various experts who were called to their assistance. The text covered the present food situation, the relation of the Food Administration to it, and the ways in which everyone has been asked to modify his food habits in order to help in winning the war. This of necessity involved a study of food and diet.

These lessons were so successful that they have been revised, brought up to date, and published in book form, and a second edition is now in press.

The book is admirably adapted for a survey course in colleges that have not before introduced work in Home Economics, as well as for an introductory or a review course for students taking the ordinary Home Economics work. If it were to be used for review, part of the material, especially some laboratory exercises, might be omitted, but on the

whole the point of view is so different from food courses as ordinarily formulated and so essential at present that very few would find much of it a repetition.

The book has been prepared with the utmost care and the facts thoroughly verified. The authors had access to the records of the Food Administration and were able to introduce much material that is difficult to find elsewhere in such well authenticated form. The brief but especially well selected bibliography at the end of each chapter deserves notice. Thanks are due the Food Administration as well as the authors for making available the valuable material in the book.

Food Guide for War Service at Home. Prepared under the direction of the United States Food Administration in coöperation with the Department of Agriculture and the Bureau of Education. New York: Charles Scribners Sons, 1918, pp. 67. \$0.25. By mail of the Journal, \$0.30.

The courses offered to colleges last spring were so successful and in such demand that it was thought wise to prepare in briefer and less technical form a survey of the food situation that might be used for high school boys and girls to make them familiar with the elementary facts in regard to food, the world's present needs and their share in supplying them. It was fortunate that the same authors could undertake this work, with the additional help of Frances Swain of Chicago Normal College. The same accurate and careful work is shown as in "Food and the War."

The Food Guide deals with the wheat situation, the war time importance of wheat and other cereals, and war bread, with the regulations in regard to it. It discusses

meat and fat here and abroad, explains the sugar shortage, shows why milk is necessary for the nation's health, and why we should produce and eat vegetables and fruits. A few well selected references are given. The work should be as interesting for the general public as for the high school student.

Both this book and "Food and the War" have an introduction by Mr. Hoover.

American Women and the World War. By IDA CLYDE CLARKE. New York: D. Appleton and Company, 1918, pp. 545. \$2.00.

In the United States, as in other countries, women, perhaps because they cannot actually fight, have been quicker than men to recognize the obligations of wartimes and to realize the tasks that must be accomplished at home as well as in the field. The amount of work done by American women, in connection with the war, has been stupendous. The promoting and executive ability displayed has opened up a new chapter in the history of women's advance into the industrial and political life of the nation. Adequate leadership has been forthcoming and women have shown that they can cooperate in a common cause and work as members of a unit for the benefit of all rather than for individual glory or notoriety.

Old organizations have undertaken new work and new organizations have been formed for special purposes. At the end of 1917 there were some five thousand different organizations and branch organizations engaged in war work, with an active membership of over two million. The author has performed a most useful task by gathering together data on these organizations, and telling the story of their entrance into war

work and of the type of work that each is doing. This volume is really a reference book or directory. Information of the scope of each of the leading organizations, the names and addresses of chairmen, and the full text of the more important official documents and resolutions of women's organizations are given.

Part I is a survey of the work of the Women's Committee of the Council of National Defence, describing with great clearness the successful coördination of effort through the state chairmen of the Women's Committee; the help given by the women in registration, in food conservation and production, in the Liberty Loan campaigns, in child welfare work, in the social work in and around the cantonments; and the way in which the problems of women thrust into industry, such as the maintenance of standard working conditions, equal pay for equal work, and the training of women to do men's work, have been met.

Part II reviews the work of the women, state by state, emphasizing any special work or novel scheme which has been followed. Part III outlines the special war relief organizations such as the Federal Council of Allied War Relief, the National Allied Relief Committee, the State Women's War Relief, and others, many of which have been at work since 1914. Special chapters are devoted to relief in Belgium, in France, in Great Britain, in Poland, and in Russia. This book is completed by a directory of the leading women's organizations connected with war work.

An adequate index would have added greatly to the value of this volume.

CHASE GOING WOODHOUSE,
Smith College.

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NEWS FROM THE FIELD

The American Dietetic Association held its first annual meeting at the Royal Palace Hotel at Atlantic City, September 26-29, 1918, with an attendance far in excess of expectation.

All meetings except the business meetings were held in the general assembly hall in order to accommodate the large audiences made up not only of members of the association but of progressive hospital people interested in it.

Thursday afternoon Dr. E. V. McCollum spoke on Conservation in Planning Diets.

A paper on The Dietitian in Social Service by Lucy Gillett, Director Dietetic Bureau, League for Preventive Work, Boston, was read by Blanche Joseph.

A talk on The Dietetic Needs of To-day was given by Martha Van Rennselaer of the U. S. Food Administration.

Friday at 9 a.m. the regular business meeting was held, Miss Graves presiding; Miss Smedley presented the report of the committee on resolutions; affiliation with other organizations was discussed at length and decision deferred. The following sections were organized: Dietotherapy, Administration, Teaching, and Social Service. The president was authorized to appoint a member of the executive committee as chairman of each section. A very lively discussion of the student dietitian problem followed, during which the nature of the training, length of course, hospital facilities, and conditions of living were discussed. The report of the committee on revision of constitution and by-laws was given by Miss Cooper. The principal recommendations were that there be but one secretary and that the dues be raised to two dollars per year. The committee on nominations presented the following ballot: President, Lulu Graves, Cornell University; First Vice-presi-

dent, Lenna Frances Cooper, Battle Creek Sanitarium; Secretary, E. M. Geraghty, New Haven Hospital, New Haven, Conn.; Treasurer, Emma Smedley, 1425 Brandywine St., Philadelphia, Pa., and these officers were elected.

Friday afternoon Caroline Hunt, U. S. Department of Agriculture, spoke on Conservation in Dietary Calculations, and a paper by Edna White on The Dietitian in Cooperation with the Red Cross, read by Emma Conley, renewed the discussion of the training of the student dietitian. The intensive training course for college graduates was brought up and the general sentiment was that it is better to give hospital training to the women already graduated from reputable schools of home economics than to devote the energy to untrained women. The hope was expressed that the hospitals would realize the necessity of opening their doors to the student dietitians, provided their dietary departments and the personnel of these departments are such as offer favorable training for these women. The motion was made that the association send a representative to Washington to confer with the proper authorities as to the scope of the training hospitals should offer to render dietitians of most value to the army, and Miss Graves was appointed to act as this representative.

The general session of the American Hospital Association and the American Dietetic Association was held Friday evening, Miss Lenna Cooper presiding. Henry C. Wright, Secretary New York State Charities Association, talked on the work of the Institutional Food Conservation Committee. C. S. Pitcher, Kings Park State Hospital, read a paper on Waste of Food in Hospitals. Miss Graves read a very excellent paper on The Management of the Dietary Depart-

ment. A brief discussion, led by Dr. Louis Burlingham, followed.

Saturday morning at a meeting of the executive committee the following chairmen were appointed: Program Committee, Lenna Cooper; Membership Committee, E. M. Geraghty; Section on Dietotherapy, Margaret Sawyer; Section on Administration, Emma Smedley; Section on Teaching, Katherine Fisher; Section on Social Service, Blanche Joseph.

The thanks of the organization are due Miss Graves for her able administration during the initial year, for rarely has an association accomplished so much in one year as has this one. Miss Graves has not only been its leader but also through it has influenced the whole profession.

College Degree in Home Demonstration Work. The first four years' college course in home demonstration work in the United States was established this summer at the George Peabody College for Teachers at Nashville, Tennessee, through the efforts of the president, Dr. Bruce R. Payne. The course leads to a degree of bachelor of science and includes academic work similar to the requirements of other scientific degrees as well as special work in home economics. Women and girls completing this new course will be equipped to take up home demonstration work for the U. S. Department of Agriculture and the State Agricultural Colleges. Since the Knapp Memorial Farm is located at the college, many specialists of the different bureaus of the Department, who visit Nashville to give instructions and to see the work that is being carried on there, have assisted greatly in the home demonstration work of the summer short courses during the last three years, and will now be able to contribute to the women's work throughout the year.

Food Conservation on Street Corners.

A new kitchen on wheels is carrying the message of food conservation in street meetings to many Boston women who have not been reached directly in any other way. A motor truck, which has been contributed by a public-spirited woman of the city, has been fully equipped for food demonstrations that are given by home demonstration agents of the United States Department of Agriculture and the State Agricultural College coöperating with the State Food Administration. The truck carries a large-sized electric stove, a white-enameled kitchen cabinet, a zinc table for hot dishes, and an enameled table for the actual work of cooking and canning. Two dozen camp chairs are also provided, and other chairs and benches are usually brought out from homes in the vicinity of the demonstration. The audiences have averaged about 60 women, fully as many children, with 10 or 12 men in the background. A trained nurse goes along who speaks for fifteen minutes, before or after the regular demonstrations, on the feeding of children and the importance of milk.

The American Association of Agricultural Colleges and Experiment Stations will hold its meeting in Baltimore, January 8 to 10, with headquarters at the Southern Hotel.

From January 2 to 8 the State Leaders of Home Demonstration Work of the States Relations Service, Office of Extension Work, North and West, will hold a conference in Washington.

A meeting of the Council of the American Home Economics Association will be held at the Journal Office in Baltimore during the session of the A. A. C. and E. S. at a time to be appointed. Members of the Association are cordially invited to visit the Journal Office at any time. It is located in the Medical and Chirurgical Faculty building at 1211 Cathedral Street.

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CHRISTMAS, 1918

If slighter fare our tables here afford,
And fewer guests our homely joys enhance.
Where millions press we spread a grander board;
This year we hold our Christmas feast in France.

We shall be host to Nations!—all who strive
For deathless right, the greatest and the least
Who give their best that Freedom shall survive.
This year we hold a nobler Christmas feast.

—ARTHUR GUITERMAN

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THE Journal of Home Economics

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DECEMBER, 1918

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AMERICAN TEXTILES¹

M. D. C. CRAWFORD

Editor, Women's Wear

As I understand the purpose of the American Home Economics Association, it aims to apply scientific methods to the selection and purchase of commodities for the home.

To a degree, it is the purpose of this Association to supply through scientific training that intimate knowledge of these important matters enjoyed by all women before the super-development of the modern factory system. In former times, this information was passed on from mother to daughter. And among so-called backward peoples, that is, nations who have not passed over personal detail to the machine, such knowledge is still enjoyed. The women of America are constantly referred to as the most extravagant on earth. They are supposed to have this quality inherent in their natures. But I regard this as merely one of those dangerous surface truths; it is always easier to make sensational charges than it is to support them by facts or to suggest practical remedies. Extravagance does unquestionably exist, but it is not wholly to be ascribed as wasteful living due to the great prosperity of America. For it is a very significant fact that in America our machine factory development has been more complete, more widespread, than in any other nation. This must share with our great wealth the blame for our careless habits of purchase. Wastefulness is generally based on lack of information.

¹ Presented at the Eleventh Annual Meeting of the American Home Economics Association, Chicago, June, 1918.

In those days when women not only cut and sewed their own garments, but prepared the fiber, spun the threads, and in many instances actually wove and dyed the fabrics, there was little to complain of in the line of extravagance.

Woman's supervision extended not only over the preparation of the daily meals, but also to the storing of such foodstuffs as could be preserved. Her knowledge of agriculture was quite remarkable and she understood the practice of elementary medicine to a very interesting degree. Her days were certainly full, and, though she bought her knowledge at perhaps too high a price, she must again acquire this knowledge, or at least that part of the knowledge which she needs in her present duties; and the only point really open for discussion is as to methods she should employ in so doing.

The romance of the modern machine, the imposing of factory organizations, and the many questions relating to economics and labor that have arisen because of the machine, have perhaps blinded us to the great debt we owe to the ages that preceded its advent into modern life. To the hand craft of past ages we are indebted for the basic principles of all mechanical processes.

The perfection to which they brought many things, especially in the textile fields, judged only on a purely mechanical basis, has never been equalled, and, of course, when we touch on the aesthetic side, the comparison between the best modern work and the best of the old work is not very flattering to our so-called modern genius. The romance of history lies not in spectacular conquests nor in the council rooms of statesmen, but is to be sought in that age-long contest that men and women, aided by a few tools which were themselves the product of their own intellect, fortuitous circumstance, and skill, waged with the forces of nature. To the man belongs the conquest of agriculture and transportation, but for the woman the loom and the potter's clay were the fields of brilliant and stubborn fight; and her genius, working through the long twilight of history, brought forth objects of utility and beauty that today our machines fashion into thousands of reproductions, and still in spite of many blunders catch a reflection of the charm imparted by the hands that have long since been dust.

I do not believe that art can ever be revived in America or in any other part of the world, unless again a large number of individuals practice the hand crafts. No age has produced a great art, or indeed an art worthy of the name, that has not based it on a study of craft

work. We are at the beginning, I am convinced, of a great revival in the evaluation of aesthetic standards, and I am confident that the next generation, perhaps the next decade, will see a revival in crafts that would have been undreamed of before this war aroused us to the true values in life.

I earnestly believe that hand craft work, therefore, should exist as an introduction to the real type of American art, and as a possible and practical solution of certain of our labor problems. I am thankful to state that the times that produced these marvels now belong to the age of romance, and what I have said in regard to the revival of interest in hand craft refers to the inclination of a group of individuals rather than to women as a class. Her place in the world has been too recently acknowledged, and is of far too great an importance in the political and economic structure of the world to relegate her again to a secondary intellectual sphere.

If the crafts are to be revived, they will be revived by both men and women, and from now on the distinction between the sexes in all of their intellectual, industrial, and political life will diminish. Perhaps the machine has gone too far; perhaps we have come to regard the machine as an end, not as a means to an end. We have learned to control and limit the economic features of the machine to a certain degree. We will solve this problem even more completely in the near future, but let us never forget that a modern factory production, whatever its faults may be (and admittedly they are great), has at least the exalted virtue of having released untold feminine energy for the great and vital problem of this dark hour.

The women of today are confronted with the problem of acquiring that knowledge of materials which they relinquished when they ceased to be home craftsmen. It is their problem, therefore, to address themselves to developing, through scientific methods, information of this character. And at least part of their problems can be solved by the insistence that manufacturers of such merchandise as they purchase be induced to sign their production.

In the purchase of foodstuffs that are prepared in factories and enter into interstate commerce, there is not only the government stamp of inspection, but (more important still) the personal guarantee of concerns who have learned the value of maintaining standards of purity, weight, and quality, and of establishing through publicity their reputation for these qualities. We find the same condition in regard to many

other essentials or luxuries. No one would buy an automobile, piano, phonograph, or camera that did not bear upon it a direct and indispensable guarantee, implied (and lived up to, in the main) by the personal signature of the maker as well as of the dealer.

There is a certain psychology in the mere act of signing a letter, a picture, or an article of commerce, which is quite apart from any financial liability implied. It arouses a strong persistent desire towards excellence. It is the combative, constructive, competitive insistence that lies at the root of all achievements. In spite of the apparent added cost of this procedure, in spite of certain tendencies toward coercive measures of sale, it remains an indisputable fact, that merchandise and men who are identified and guaranteed, are a little higher in value than the anonymous.

It may, perhaps, appear strange that the most intimate articles of commerce that enter into our lives (that is, our costumes and the fabrics that compose them) have in a large measure escaped this identification of the use of a trademark or firm name; yet this simple and apparently natural expedient has not been resorted to, partly because we have retained a certain superstitious reverence for the word "imported"—an attitude confined largely to the professional elements in the retail dry goods business and shared in only a small degree by the women of America.

We have retained in the twentieth century, in spite of the most gigantic development, a strong reminiscence of the old "Vendue." Many of our retail advertisements read like pages from the newspapers published before the Revolution. You may recall the quaint old form: "By the Grace of God, on the 13th day of —, at Bowling Green, the barkentine Slapping Sally, outbound from foreign ports, landed the following packages of merchandise." Then follows an enticing list of feminine and masculine finery, interspersed with interesting mention of certain wines, high spirits, etc., and the information that these goods would be offered for sale at a "Vendue" on some near date. But those times have passed away, and it may be well to point out the anachronism of the use of the word "imported" as distinguishing quality rather than a geographical distinction. The actual facts of the case are that in the average high class department stores, at least 95 per cent of the stock is domestic; but in their advertising campaigns, stress is laid on the imported in practically reverse ratio. It was (and is, where it still exists today) rather a custom than a conscious intent to deceive. There

is no question that the retailers of America are men of probity and unquestioned patriotism. The word has become a peg to hang their advertising on. They are naturally concerned in the sale of their wares and have cherished the superstition that the women of America want imported rather than domestic material, regardless of quality. And if the actual imported material is not available at the prices they can afford to pay, a skillfully camouflaged domestic article is next in demand.

They retain something of the epigram of the famous showman who said. "The public likes to be fooled." I do not believe this. I rather incline to the idea that the misuse of the word is one of the relics of olden times, when it did express quality distinctions that were very important; and where it still exists it but proves the force of years of publicity; for women have unconsciously, perhaps, come to associate this name with quality, and by contrast the term "domestic" has come to mean something of indifferent value.

There is no question that even today, in spite of our enormous advances, Europe makes certain things better than we do. Certainly as regards the artistic quality of merchandise, the average European manufacturer has been more thoughtful and more appreciative of this value. But the productions of European mills that have won for Europe her great reputation in the world (and this especially applies to the French) have always been known, not only by their national mark or insignia, but by individual names as well. We do not speak so much of a French gown as we do of a Callot, Lanvin, Poiret, or Paquin, and when we speak of French fabrics we think of Coudurier, Bianchini, or Rodier, rather than of some indefinite mill in France.

When this war is over, our Allies will not only need our merchandise to replenish their stocks, but will also need our markets to rehabilitate their industries. Where they excel in domestic production, they are in all fairness entitled to a preference. On the other hand, American manufacturers have, by foresight, intelligence, and courage, maintained and advanced recognized standards. They are also deserving of credit and patronage—the rewards of these qualities. We should not, therefore, permit or countenance the misuse of the term "imported," but should so arrange that merit will be the sole determining factor in each purchase. Let us always remember that the retailer is the only gainer by the misuse of the terms "domestic" and "imported."

The war has done at least one great service to America. It has demonstrated to the public the ability of our industries to care for our

wants, and this proof has come under conditions that at the best have been trying and at the worst have been extremely difficult. In order that certain points may be developed that will be of interest to you as indicating possible lines of research, it may, perhaps, be well to review certain of the difficulties that still exist, what progress has been made in solving them, which ones have been overcome.

First in importance comes the question of wool. You all know that the military needs have placed great burdens on the available wool supply, and, of course, the needs of the army come first, not only in the government's program, but in that of the millman and the public as well. There is no pose or affectation when a manufacturer or a woman consumer says that he or she would rather not use the fabric that the soldier needs. However, there have been certain garments and materials made up that have passed beyond that stage where they could be diverted into war use, and these form what I may style "the first line of defense" against scarcity. The increase in our shipping will soon release shipping space that will enable a larger supply of wool to be brought to America; and I say emphatically that scarcity in the sense of a definite want, the possibility of men or women in civil life being improperly clothed against the inclemency of the weather, does not and cannot exist in America. But scarcity as compared with the former abundance does exist and will exist, and discrimination in the use of woollens, and economy in their purchase, are matters of a definite patriotic value. The question of substitute fabrics is one of great interest and one that has received too little attention either from the public or from the trained mill specialist.

Custom has settled on wool as the ideal fiber for outer garments. This custom has been hallowed by years of observance; and it may be true that wool is the best fiber that can be produced in large quantities for this purpose, although I am not sure that a strong case from the history of fabrics and garments could not be made out for other fibers, and I am certain that even if it is the best for the purpose it is not the only one. Already our great silk mills are experimenting and have perfected a part of their experiments with certain silk substitutes for woollen fabric. These are not necessarily exorbitant in price. It is, as with woollen fabrics, a question of degree. Certain mills that made fabrics for medium-priced garments still continue to make their wool substitutes for the same type of garment, and the mills that serve the more expensive garments naturally continue to make more expensive

substitutes. This is quite within the realm of good sense and in no way draws a comparison between the two sources of supply.

Every woman, either of moderate or of great wealth, should approach the subject of garments in the spirit of practical economy. There should be no extravagance. However, when the problem has been settled as to the purchase of some garment, a woman should follow the natural tendency suggested by her financial circumstances and if she can afford to buy an expensive costume she should do this in order not to place an undue burden on such possible substitutes as are within the means of the women who have less money. In other words, if a woman who can afford to spend \$10 a yard for a beautiful silk duvetyne or velours, buys instead a fabric costing \$2 or \$3, she is thereby diminishing the available supply of material for the woman who can only afford those prices. The scarcity is not in money at this time; the scarcity is in materials.

I suggested to a manufacturers' association that scientific conservation would be materially aided by a careful study of the history of costume; that certain types of great charm and utility, employing a limited yardage, might be discovered among certain of the skin cutting tribes of Siberia and the natives of the Philippine Islands. The garments of northern China, a country in which the climatic conditions are somewhat more rigorous than in the United States, are made from silk with a cotton-padded background. These garments are extremely beautiful and evidently give as great a protection against the weather as woollen garments. It is not wool itself that gives warmth. It is the scale-like quality of the woollen fiber and its felting qualities that make it a container of the body's natural warmth.

The men who went on one of the daring expeditions into the Southern Arctic were clothed in garments made from combinations of vegetable fibers, and contained no wool. Other instances of a similar nature in which costumes of warmth and charm were developed without the use of wool could be multiplied indefinitely. The fact has never been established on a scientific basis as to which fiber is the most adaptable for outer wear, and we should also remember that the custom that dictates to us the use of wool for this purpose also formerly dictated its use in undergarments as well.

An instance of how a custom may become changed through circumstance and still effect no hardship is that furnished by the lack of flax incident upon this war. Before then we imagined that for certain pur-

poses flax was the only fiber possible. Take, for example, table-cloths—only the cheapest substitutes were made in cotton and then cotton yarn of a very doubtful quality was used. When, however, there were no linens available, the mills making tablecloths bestirred themselves, purchased better grades of cotton yarn, and made tablecloths that in most ways answer all the purposes of the linen ones, and we have scarcely felt the want of linen.

The American dye industry is an excellent example of what American ingenuity and courage can accomplish. Through achievements that must be freely admitted and through carefully prepared propaganda, the Germans had created the impression that the chemical dye industry could not develop outside of their sphere of interest. But in this as in many other of their theories, practice proved them woefully in error. It was, however, a curious instance of our public and professional lack of scientific information to observe the different reactions from the situation. At first all was confusion and dismay. The market for the remaining German dyes was simply insane and indeed the prices paid for the first American substitutes, often of very inferior quality, were ridiculous. This was bad, but the sequel was even worse. We passed from depletion and demoralization to extravagance. The industry and the press, and through them the public, began to imagine that in a moment the entire problem of dyes had been solved. This over-confidence did more actual harm than the former lack of belief.

Since the beginning great advances have been made in the production of dyes in America and we may look confidently to the future for even higher attainments. However, there are certain colors that require toluol as a base, such as bright acid blue which goes to form certain shades of taupe, rodent, and beaver. This base has not yet been developed for sale in large quantities or at prices that put it within the reach of the ordinary purchaser.

Chrome colors, which are guaranteed to a high degree of fastness, do not have the brightness and bloom that we have learned to associate with aniline colors. However, for outer garments, chrome colors that are reasonably fast to light, would be more desirable than aniline colors (whatever their artistic qualities) which would not stand tests of service. I think that the matter should be discussed very earnestly with the retailer at each purchase, and that the mere assertion by the retailer that he cannot guarantee colors because of the condition of American dyes, should be gone into sufficiently to find out what colors he can

guarantee as being fully up to pre-war conditions. There are many such colors, and if the retailer himself does not know them, he can easily ascertain them by asking his manufacturer or by referring to any of the great dye plants. An attitude of distrust of the entire industry and lack of confidence in the future is a great injustice to an industry that has done splendid service and that will do splendid service to all American industries; and failure to study actual conditions—to learn colors that are successful and those that are still unreliable—that are still to be perfected—is just as great an injustice.

Whatever substitutes conditions may impel us to use, there is no excuse for neglect of artistic qualities. Beauty and extravagance, charm and costliness, are not synonymous terms. Simplicity of line and design is the very essence of the highest in decorative values. It is as a general rule a less labored, less intricate process to make a garment or house or picture beautiful than to make it overdecorated. In the midst of a world of war, it is the duty of women within these limitations to look their best. Ostentation or frivolousness in costume or fabric is not in good taste at this time, but neither is undue somberness.

There is a very intimate relationship between bravery and sprightliness in chromatic schemes. The soldiers themselves will be the first to make this demand. The exigencies of modern warfare require that men be clothed all alike and in colors that do not attract. Their colors are protective. But the longing for color is so insistent, is so deeply embodied in every human being, that soldiers returning, either from our great cantonments or from the actual fields of battle, will want to see some contrast to the drabness that has surrounded them while in active service.

This hunger for color has been one of the most interesting psychological facts that have been noticed in London and Paris, and in those war-hardened capitals the lesson has been learned, and the women (within the limits of good taste) have dressed smartly and beautifully. The early tendency towards aping the soldier's uniform in civil costumes in this country has, I am happy to say, largely disappeared. Women who are doing actual service that requires special uniform are, of course, equally with the men, entitled to wear it. But as a fashion or vogue of the hour, the good sense and taste of the American woman and her real patriotism have come to the fore and prevented this travesty on our soldiers' costume.

PROBLEMS IN CAKE MAKING

ELIZABETH W. MILLER AND BERNICE ALLEN

Formerly of the University of Chicago

Among the most difficult problems in the cooking courses for inexperienced students are those that come in the baking lessons. This is because there are so many factors which may influence the quality of the finished product. The lack of uniformity in results obtained even when the ingredients are weighed and the baking temperature carefully controlled, is evidence that the manipulation of the batter or dough, as well as variations in ingredients, is in many cases of great importance in determining the texture, size, and shape of the product.

This is especially true of cakes. Because the number of ingredients makes possible considerable variation in manipulation, and because the fat, sugar, and eggs are usually contained in such proportions that they must affect other qualities than the flavor, cakes offer a wide variety of problems for experimental work. For some time classes in this department have been doing such experimental work to determine the effect of varying the method of mixing ingredients, the amount of beating given the batter, and the proportions of ingredients. The results of some of the work are reported in this paper.

The following recipe for a standard cake was used:

	<i>Weight</i>	<i>Measure</i>
Milk.....	244 grams (237 cc.)..	1 cup
Butter	112 grams	$\frac{1}{2}$ cup
Sugar.....	300 grams.....	1 $\frac{1}{2}$ cups
Egg.....	96 grams.....	2 eggs
Pastry flour.....	300 grams.....	3 cups
Phosphate baking powder	18 grams.....	4 teaspoons
Flavoring.....		1 teaspoon
Salt.....		$\frac{1}{2}$ teaspoon

One-sixth of the recipe was made up for each experiment. The ingredients were weighed, with the exception of salt and flavoring. The batter was baked in muffin tins 2 inches in diameter at the base and 2 inches tall, at a temperature of 190°C.

I. Effect of varying the method of combining ingredients. The conventional method generally employed for combining the ingredients of a plain cake is to cream the fat and sugar, stir in the beaten egg, and finally to add, in portions and alternately, the liquid, and the flour

sifted with the baking powder. Directions frequently put emphasis upon the necessity of creaming the butter and sugar thoroughly and of beating the batter well before baking. This method is sometimes modified by separating the whites and yolks of the eggs and folding the stiffly beaten whites into the batter the last thing.

In contrast with this, the method employed when a commercial cake-mixer is used, of putting all the ingredients together—the softened fat, sugar, egg, liquid, and flour sifted with the leavening agent—and stirring sufficiently to mix thoroughly is simple and time-saving as well.

To determine whether or not the elaborate household process produces a result commensurate with the time and effort required, cakes were made combining the ingredients in four ways: the conventional method, the conventional method separating the whites and yolks of the eggs, the conventional method softening the fat by warming instead of creaming it with the sugar, and the “cake-mixer” method. Since it is not practicable to use a commercial cake-mixer with a small quantity of batter, the ingredients were all put into a bowl at once and stirred with a spoon.

These methods all gave products that were similar in appearance and texture. The standard for a cake made after this recipe is one which has a slightly rounded top, a medium fine, even grain, and a crumb which is elastic to the touch and soft and delicate in the mouth. This sort of product seemed to be more dependent upon the skill of the person making the cake than upon the method used. One who had had considerable practice in cake-making obtained good results whichever method was employed. However, with inexperienced students, the “cake-mixer” method, which requires little manipulation, usually gave more uniform results than any other.

Separating the whites and yolks of the eggs is no advantage in this recipe. It is important when more eggs and less baking powder are used so that the leavening of the cake is dependent upon the air folded in with the stiffly beaten whites. Softening the fat by warming instead of creaming gives a different appearance to the batter, but has no effect on the finished product. This is in accordance with the conclusions reached by Miss Wellman¹ and Miss Milam.²

II. The effect of beating the batter. It was frequently observed in these experiments that two persons working side by side, weighing the

¹ Wellman, Mabel: *Journal of Home Economics*, 1 (1909), no. 5, p. 418.

² Milam, Ava B.: *Journal of Home Economics*, 4 (1912), no. 3, p. 262.

ingredients, using the same method of mixing and baking their cakes in the same oven, obtained different results. In one case the cake had a coarse, even texture and was flat on top; in the other the texture was close, broken sometimes by long tunnels, and the top rose to a peak. The conclusion was that the amount of mixing and beating given the batter must have varied in the two cases.

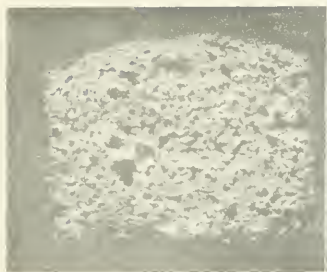
A full recipe of the batter was made up by the "cake-mixer" method and stirred just sufficiently to mix the ingredients. A weighed portion was baked immediately, a second equal portion was beaten one minute, a third two minutes, a fourth five minutes, and a fifth ten minutes before baking. The results are shown in Plate I.

The first cake has a coarse, even texture and a flat top. Such a cake crumbles easily, and has a soft crust that is somewhat rough. With increased beating the texture becomes closer and there is a tendency for tunnels to form. In the cakes which were beaten five and ten minutes these tunnels are very marked, and in the last cake the texture between the tunnels is solid and compact. With increased beating, also, the cake becomes smaller, the crust is smoother and the top forms a pronounced peak.

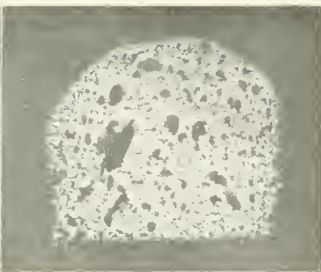
To determine whether or not these changes were due to the fact that the carbon dioxide had been lost during the long beating, two other mixtures were made up, one containing baking powder and the other not. The batter having the leavening was baked immediately without any beating. The other was beaten ten minutes, after which the baking powder was sprinkled over the top and stirred in. The results are shown in Plate IV.

Beating the batter ten minutes before adding the baking powder resulted in a somewhat larger cake similar in appearance to the first one, but with a slightly finer texture. This difference in texture was especially evident when the cake was eaten. There was not, however, sufficient improvement to pay for the effort expended when the beating must be done by hand. In adding the baking powder last, care must be taken to mix it in thoroughly. Otherwise, the texture will be uneven.

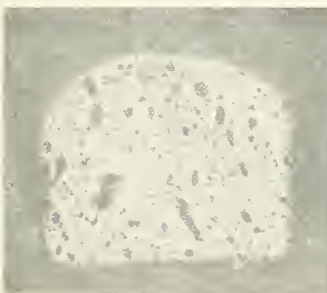
The conclusion that it was loss of carbon dioxide which caused the peculiar texture of the beaten cakes was strengthened by the observation that any considerable reduction in the amount of baking powder produced similar results even in the unbeaten cakes. It has not been found advisable to use less baking powder than is recommended on the



No. 1. Batter unbeaten.



No. 2. Batter beaten one minute.



No. 3. Batter beaten two minutes.

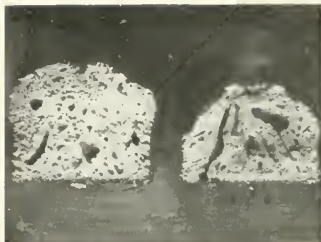


No. 4. Batter beaten five minutes.

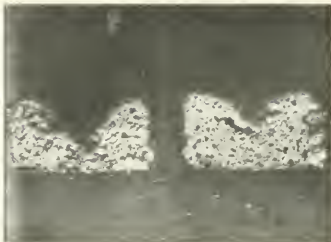


No. 5. Batter beaten ten minutes.

PLATE II

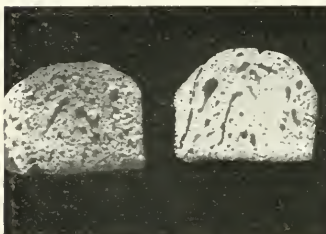


No. 1. Cake with one-half the amount of sugar—unbeaten and beaten two minutes.

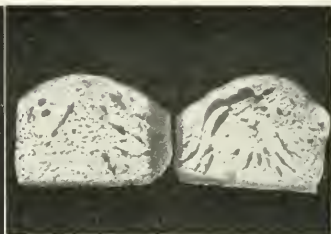


No. 2. Cake with double the amount of sugar—unbeaten and beaten two minutes.

PLATE III

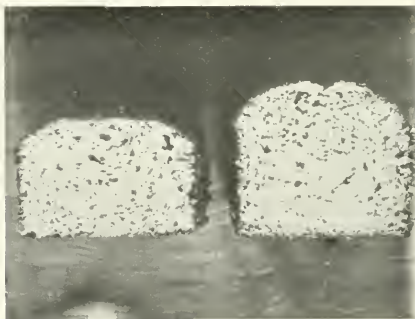


No. 1. Cake with double the amount of egg—unbeaten and beaten two minutes.



No. 2. Cake with three times the amount of egg—unbeaten and beaten two minutes.

PLATE IV



No. 1. Batter unbeaten.

No. 2. Batter beaten ten minutes before baking powder was added.

manufacturer's label. This will vary somewhat with the kind of baking powder, since the weights of one teaspoon of the different powders are not the same.

This series of experiments disproves the old theory which is still sometimes taught, that long and vigorous beating is necessary to obtain a good cake. We have frequently heard housewives say that whenever they took particular pains to make a fine cake, it was sure to be a failure. On the other hand, one that had been put together hurriedly was usually a success. There is an optimum amount of beating which gives the most desirable product, a cake with fine texture but free from tunnels. This seems to be from one to two minutes, depending upon the vigor with which the beating is done.

III. The effect of varying the proportions of ingredients. Sugar: The proportion of sugar to the other ingredients in the mixture is important (see Plate II). The unbeaten cake made with one-half the amount of sugar (illustration no. 1) is light and well-risen, but the texture is rather coarse and bready, and the crust looks like that on a muffin. The cakes made with double the amount of sugar (illustration no. 2) have fallen badly, the crust is sticky, and the walls surrounding the pores are thick instead of thin and transparent as in a cake of good texture. Similar results were obtained in this laboratory with doughnuts.³

The close relationship that exists between the proportion of sugar and the amount of beating that is desirable is also shown in Plate II. The cake made with half the usual amount of sugar and beaten two minutes is small, and the texture is compact, with large holes shot through it. Even this small amount of beating always has a detrimental effect on cakes which contain too little sugar. On the other hand, cakes having a large proportion of sugar are improved by beating.

This and other experiments varying the proportion of sugar in this recipe have led to the conclusion that increasing the sugar up to a certain point improves the texture. It is not possible, however, to increase the quantity much above that given without causing the cake to fall. The amount of beating necessary to produce the best texture is also partly dependent upon the proportion of sugar. The more sugar the cake contains the more beating is desirable.

Egg: A close relationship also seems to exist between the number of eggs and the effect of beating. With more egg, the cake is toughened

³ McKee, Mary C.: *Journal of Home Economics*, 10 (1918), no. 1, p. 18.

and there is an increasing tendency to rise to a peak and to form tunnels when the cake is beaten. The tunnels in the cake are usually narrow and converge at the top of the peak. These characteristics are shown in Plate III.

Cakes were also made in which the egg was omitted entirely. These were similar to cakes containing a slight excess of sugar. Those which were not beaten had a somewhat sticky crust, were coarse-grained, sunken a little in the middle. Beating the batter gave a better texture, but this cake containing no egg is improved by reducing the sugar in the standard recipe to one cup.

The results of this experiment lead to the conclusion that these two ingredients, sugar and egg, must be used in such proportions that the effect of one will balance that of the other. While egg added to the batter toughens the cake and increases the tendency for tunnels to form, sugar, if not used in excess, gives a fine, soft texture and prevents the formation of tunnels. At a time when eggs are expensive cakes made with the smaller amount of sugar and no egg are entirely satisfactory.

Fat: Fat is used in cakes to give tenderness and richness of flavor. Reducing the fat causes the cake to be tough and, as in the case of increased egg, there is a tendency for tunnels to form in the beaten cake, although not to so marked a degree. With increasing fat the cake becomes very tender, so that it falls to pieces easily, and the edges curl over in baking. When cut it looks compact and moist. Fat acts as a liquid in the batter and it is therefore necessary when increasing the amount of fat in the recipe to decrease the liquid proportionately. The egg also must be increased, since otherwise the cake will not hold its shape.

The consistency of the fat used in cakes has a marked effect upon the texture. Very hard fats produce a fine, close grain similar to a pound cake. The cut surface is firm and somewhat resistant to pressure. This firmness is due to the hardening of the fat. When eaten the cakes are tender and crumble easily.

In contrast to these, cakes made with the oils are light and spongy, and have a loose, coarse texture. They are soft instead of crumbly in the mouth.

Fats of medium consistency, such as butter and oleomargarine, produce a texture intermediate between that obtained when the hard fats and the oils are used. A texture more nearly approaching that of

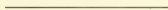
butter cakes results in the case of cakes made with oils if the liquid is reduced by one-sixth to one-fourth. With hard fats reducing the flour by one-sixth improves the cake.

SUMMARY

In cake making, manipulation is one of the chief factors in determining the quality of the product. In an ordinary cake the method of combining ingredients is not in itself important except as it controls the amount of mixing and beating. There is an optimum amount of beating which is desirable, from one to two minutes, depending upon the energy with which the beating is done. Less than that gives a coarse crumbly texture; more gives a compact texture with tunnels.

The relation which the various ingredients bear to each other is also important. Increasing the sugar up to a certain point makes the texture finer; increasing beyond that makes the texture coarse and causes the cake to fall. Increasing egg alone toughens the cake and produces tunnels with beating. Increasing fat alone makes the cake rich in flavor and tender. If used in excess, the cake will not hold its shape. Neither fat, sugar, nor egg can satisfactorily be increased alone beyond a certain point. All these must be increased together in such proportions that the effect of the fat and sugar on the one hand will offset that of the egg.

Further experimental work on cakes is being done in this laboratory.



Now that we are all guests at a common table, a single caterer—the Inter-Allied Food Council—by common consent, adjusts the fare.

WHAT TEMPERATURE IS REACHED INSIDE THE JAR DURING HOME CANNING?

MINNA C. DENTON

Professor of Home Economics, Lewis Institute. (Ellen H. Richards Fellow in Household Administration, University of Chicago, at the time of this study.)

The charge that spores of *Bacillus botulinus* may often survive the process of home canning has in recent years lent a new earnestness to our search for the answer to the above question. Van Ermenghem, discoverer of one of the best-known strains of this bacillus, found that its spores were unusually sensitive to heat. Indeed, they were killed by heating for 30 minutes at 80°C. (176°F.) or for 15 minutes at 85°C. (185°F.). Directions for processing vegetables often call for two to three hours' heating of the jar in a bath of boiling water. But the important question is: How long does it take the center of the mass of cold-dipped vegetables inside the jar, to reach the boiling temperature of the outside bath,—or rather, to reach a temperature somewhere between 98°C. and 100°C.?

The following trials, made with a mercury thermometer¹ inserted through the cover of a mason (quart) jar, so that the bulb of the thermometer was placed in the center of the vegetable mass, illustrate some of the possibilities.

Carrots were pared and sliced, were not blanched, but were cold-dipped for one minute under the running cold water faucet. 435 grams were at once packed into a hot glass (quart) jar,² and 465 cc. of boiling water, were added. The temperature as indicated by the thermometer fell immediately to 75°C. Delay of 1½ minutes ensued, so that the internal temperature in the (partially) sealed jar was 60°C. at the moment when it went into the boiling water bath. This jar was the center one of five. The outer vessel was an enamelled iron jar 12 inches in diameter and 11 inches deep; it held, besides the jars, 17 quarts of

¹ It is, of course, true that such a thermometer indicates only the temperature of the liquid surrounding the pieces of vegetable, and not that of the interior of portions of the vegetable tissue. But it must be the case that in most instances, when trimming has been carefully done so as to reject all unsound tissues, the source of contamination is on the surface of the pieces of vegetable and not in the interior of the tissue.

² Only about 435 grams of carrots could be packed into the jar when the carrots were not blanched, whereas with blanching and close packing, the same jar would hold 700 grams of the same carrots.

boiling water whose level reached just above the rubber rings of the jars at its lowest (in the moment before replenishing) or well over the glass tops otherwise. This boiling water was of course renewed only with boiling water.

In 5 minutes' time,³ the temperature in the center of the jar was 80°C.; in 11 minutes' time from the start, it was 90°C.; in 21 minutes' time, 95°C.; in 45 minutes' time it was 98°C., where it remained during the rest of the time of processing. Thus the internal temperature was at its maximum during 75 minutes of the two hours' processing time.

In a second experiment, 700 grams of sliced carrots were blanched five minutes in boiling water, cold-dipped as above, packed into the hot jar and covered with 200 cc. of boiling water. The temperature of the boiling water at once fell to 40°C. In 30 minutes after placing the jar in the boiling water bath, the temperature in the center was 82°C.; in 37 minutes it was 87°; in 50 minutes, 92°; in 80 minutes, 98°C. Thus we see, that increasing the proportion of vegetable mass (which heats through with comparative slowness, partly due to lack of convection currents in cellular tissues) and decreasing the added water in the jar, to the extent mentioned above, has almost multiplied by *two*, the time required for heat penetration to the center of the jar, in the above instance.

In cooling, these jars when set in a warm room protected from a draft, required at least 25 minutes (and sometimes more) before the internal temperature fell to 85°C. At the end of two hours, the internal temperature was 55°C.

Thus we see that in the second instance mentioned above, where the conditions were not as favorable for a speedy sterilization as in the first instance, there was still an interval of 115 minutes when the internal temperature remained above 80°C. 90 minutes of this sterilizing period include the last part of the processing period, 25 minutes of the 115 include the first part of the cooling period.

However, it will not be proper to argue from a few experiments, such as those from which these two have been selected, that the *Bacillus botulinus* would necessarily be unable to survive a three-hour sterilization period. Two important modifying factors must be kept in mind. First, a large number of such measurements of internal temperatures is

³ The time was reckoned from the moment of immersing the jar in the water bath. In the first experiment 1½ minutes was required to bring the bath again to the boiling point; in the second experiment, 4 minutes.

needed; these should be performed with many different mixtures of water and vegetable tissues of different sorts. Second, there is needed a large number of experiments showing the death point of spores of different strains of *Bacillus botulinus* under different experimental conditions. Apparently this is a highly variable organism in some of its properties, if we may judge from the existing literature; and it may easily be the case, that not all strains are as readily killed as was that of Van Ermenghem's "*Bacillus botulinus* of Ellezelles."

Furthermore, the nature of the medium in which the heating takes place may profoundly modify its destructive effect upon bacteria. E.g., bacteria are more easily killed by heat when suspended in water than in milk; and more easily killed in liquid milk than in the scum which forms on the surface of milk heated in an open vessel. Again, recent experimental work shows that the presence of starch protects yeast cells, to some degree, from heat destruction. Still another instance: unpublished experiments show that *Bacillus botulinus*, when heated in a liquefied gelatin medium, has a comparatively great heat resistance. One fact, however, does stand out. Spores which are more hardy than those of *Bacillus botulinus*, or of any disease-producing bacteria of which we know, may and undoubtedly do upon some occasions escape heat destruction in a processing period of one, two, or three hours; especially when the conditions are such that 80 minutes of that time must be used up in bringing the contents of the jar to the boiling temperature. Such hardy organisms as these, may or may not grow under the conditions which obtain in the jar after cooling, and the unsterile food mass may or may not "spoil."

From the above experiments, and from other considerations, it is evident that two women using the same material and following with equal care and intelligence the same directions, may often obtain very different degrees of sterilization. The length of time required for the contents of a jar to attain a temperature very near the boiling point may vary from 30 minutes (initial temperature in the jar, 70°C.) to 100 minutes, according to the writer's very limited observations; and may easily be made to vary more widely than that without departing from the directions usually given for canning. With any given period of processing, the longer the time required to heat through to the center of the mass, the shorter the time remaining for the accomplishment of sterilization. Other things being equal, this preliminary heating period

will be shortened and consequently the sterilization will be made more nearly complete, by observing the following conditions:

1. When the vessel used for holding the bath of boiling water is of such size and shape that a considerable mass of water surrounds the jars, the sterilization is much more rapid than if a small bath with a correspondingly decreased amount of boiling water be used. Thus the entrance of the cooler jars does not so greatly check the boiling of the bath; and the rate of heat penetration is more rapid. In using a given outfit, an excess of boiling water may be secured either by packing fewer jars into the same space, or by raising the rack on which the jars stand (and also the water level), so that there is a larger body of water beneath. It is usually less convenient to increase considerably the mass of water above the jars, for they are not so easily handled at a depth of more than two or three inches.

2. As the directions usually indicate, care should be taken to keep the surface of the boiling water well above the covers of the jars being sterilized. If this level sinks to the rubber rings, a difference of 1° or 2°C . may sometimes be observed within the jars.

3. The longer the cold dip, the colder the water used for dipping, and the more thoroughly the plant tissue is chilled, the more greatly the process of sterilization is hindered or delayed.

4. Pint jars will, of course, heat through somewhat more rapidly than do quart jars. Under some circumstances, the jars nearest the outside of the bath may be much slower in reaching a sterilizing temperature than are the jars nearer the center.

5. The more tightly the cold-dipped vegetables are packed the smaller is the amount of boiling water which the jar holds, and the greater is the delay in reaching a sterilizing temperature. However, since other considerations obviously demand a close pack, it is doubtless wiser in most cases to reduce the time and raise the temperature of the "cold" dip, rather than to increase the amount of water used in filling the jars. To pack loosely means to increase the amount of watery juice remaining in the jar at the end of the process, which in turn increases the extraction of plant juices and nutriment. This large amount of watery juice, being very likely lacking in flavor, is perhaps in greater danger of being thrown away or wasted than would be the case with a smaller amount of more concentrated juice.

In case of those vegetables especially hard to can successfully, however, it will be found a distinct advantage to increase the proportion of boiling water and reduce the amount of vegetable put into each jar; for this will shorten the preliminary period of heating and thus increase the period of sterilization, without increase of the time of processing. It then becomes the duty of the dietitian and housewife to devise some means of concentrating or otherwise utilizing the juice, which under these circumstances may contain two-thirds (or even a larger proportion) of the vegetable nutrients. For, strange to say, many a woman who would not think of throwing away a meat broth will, nevertheless, discard the vegetable broth which in most instances is a much more highly nutritious product.

WHAT ONE DEPARTMENT DID

ZELLA E. BIGELOW

During the recent outbreak of Spanish influenza at the Michigan Agricultural College, the Home Economics Division like those of many other colleges and schools had the opportunity of using its equipment, faculty, and students in a practical and helpful way.

There were 1300 men on the Campus in the Students' Army Training Corps and the Vocational Detachment. Even though the disease was very well controlled in the camp, the shortage of nurses and trained dietitians was early felt and the practicability of enlisting the woman power of the college was seen by the military authorities.

At 10 o'clock on Saturday morning the request came to the Domestic Science Department to take charge of the preparation and serving of meals to 120 patients in the military hospitals. At 3 o'clock the first meal was served.

The diets were made out by the army nurse in charge and sent to the Domestic Science Department, which did all the buying. The bills were charged to the barracks kitchens.

The work was done by members of the department, assisted by one cook and the girls in the senior class. The research laboratory in the Woman's Building was used for the preparation of food. The senior

cooking classes assisted in its preparation. Here lemonade, chocolate, malted milk, creamed chicken, broths, sandwiches, custards, baked apples, and other articles of the diet were prepared in large quantities.

A dispensing kitchen was improvised in the basement of the Horticultural Building which is very near the barracks that were used as hospitals. An ice box and three hot plates were installed; trays and dishes were obtained from men's society houses and fraternal orders. The drawers of the horticulture laboratory were stocked with dishes, and labeled like a well ordered pantry. In this laboratory two sergeants and six privates were detailed for duty. They washed all dishes used in serving the sick, since none of these were taken at any time to the preparation kitchen.

The procedure of serving a meal was worked out in such a way that the food reached the patients while hot and appetizing. The diet for the day was prepared in the laboratory in the Woman's Building. At meal hours, 7 a.m., 12 o'clock, and 5 p.m., orderlies reported there and carried the food to the dispensing laboratory where written orders from each ward had been brought during the hours preceding the meal; such as, for example, "Barracks B—4 light diets, 7 liquid diets." The trays were ready, set with dishes and silver and marked with their slips. Hospital orderlies then began to arrive. They stood in line, stating the names of their wards in turn. The senior girls filled the trays, while one girl checked each tray by its slip to see that it was complete.

The dispensing laboratory was also prepared to serve chocolate, egg nog, grape juice, ice cream, broth, and albumin drinks at any time. These were served to the patients on liquid diets at 10 o'clock and 3 o'clock, and at 8 o'clock in the evening, in addition to the regular meal hours.

The Domestic Art Department made pajamas, surgeons' coats, face masks, arm bands, and pneumonia jackets. Some of the sewing was done during class hours, but much of it in the evening. The girls signed up for work at all hours of the day and for an hour in the evening. Every effort was made to meet the requests made each day from the hospital for the number of articles required the next day.

The work done in this emergency was not only of great service, but it was an invaluable experience for the girls who shared in it.

SHORT RATIONS IN FRANCE AND ITALY

The signing of the Armistice lifted the cloud of fifty years, and France broke into joy and color and dancing. She walked at last free in the sunshine and every good seemed possible at once. Peace, however, added nothing to food supplies, and hardship must go on until next harvest. Victor Boret, the French Food Controller, announced shortly after the Armistice was signed that it would be impossible to increase the war-time rations to civilians, but promised lower prices.

To Italy, peace brought only increased food difficulties as the newly acquired territory and prisoners added about 5,000,000 people who must be fed. With admirable foresight the Government set aside a great store of food for the immediate relief of the redeemed provinces and returning prisoners, and prepared to face the situation.

Rationing is vigorously enforced by the card system and war-time allotments of food have been severely cut. The new ration provides a monthly allowance of 17 pounds of bread and 13 pounds of other food for each person. This is only a pound of food a day and seems very little at any time but especially meager in this hour of victory.

THE COMMON TABLE

Food, to the average American, used to be a question mainly of purchasing from the nearest grocer and butcher what appetite and income dictated. Where the food came from, how much there was of it in the world, how universal its consumption, these questions were none of his concern. He could get what he wanted if he could pay for it, and nothing else mattered.

The entrance of America into the world war and the pooling of her interests with her associates, changed the whole food situation. This change concerned not only governments, but the individual. We became internationally minded in the matter of food. With the signing of the armistice there has come a still greater change. Millions of people from a score of nations are asking for food. Today every American must, as never before, look on himself as a citizen of the world—a hungry world—when deciding what shall go on his table. Before he

helps himself, he must stop and ask, "What is there to eat?" and "How many people are there to eat it?" Our common table has enlarged. All the world is sitting about it. There is barely food enough to go around. Only the selfish will use more than they need. If one uses too much, another must go without.

MISS MARTHA PATTERSON

IN MEMORIAM

Miss Martha Patterson lived a life of devotion to duty and service to humanity that was beautiful in its simplicity. In reading the following brief sketch one sees between the lines the opportunities for gradual development that resulted in the forceful personality that all among whom she worked had come to value and to love.

Miss Martha Patterson spent her childhood and early life with her parents on a farm in Central Illinois. Here she finished the eight grades of the elementary school and then at once entered the Illinois State Normal University at Normal, Ill.

After two years of study she taught for a few years in country schools with marked success. She then returned to finish her course in the normal school. A few months before she had completed the work she accepted a position as primary teacher in the public schools of Evanston, Ill. Her work here was very successful. Her gentle, sympathetic nature admirably fitted her to deal with little children. She found special pleasure in helping mediocre children to find themselves. She filled the timid ones with courage, and with confidence in themselves and the world in which they lived.

After about ten years of service in the Evanston schools she resigned her position in order to go home and care for her invalid mother. While at home she finished her course in the normal school.

In 1909 she entered Teachers' College at Columbia University, where she majored in home economics, taking the degree of B.S. in 1911.

The following fall she began her work as Head of the Department of Home Economics at The Girls' Technical Institute, Montevallo, Alabama. In the genial atmosphere of this southern school she found the

opportunity to work out some of the big, democratic ideas in which she so firmly believed.

During the meeting of the Southern Home Economics Association at Blue Ridge, N. C., the last week in August a memorial service was held for Miss Patterson, one of its most active and best beloved charter members and at the time of her death vice-president of the Association.

The meeting was presided over by Miss Nell Tappan, who told of her personal association with Miss Patterson while an extension worker under her at the Alabama Girls' Technical School. She characterized Miss Patterson as a deep thinker, a hard worker, and a wise counselor, who possessed a quiet dignity, a genial, modest womanliness, and a patient, abiding faith in others that made her charming. Miss Mary Feminear, State Home Demonstration Agent of Alabama, spoke of Miss Patterson's influential position as a leader to whom educators over the state looked for guidance in matters of home economics. She was the founder and the first president of the Alabama Home Economics Association, and was responsible for the installation of the Home Economics Department in the University of Alabama and for the appointment of a committee to formulate uniform courses of study for the high schools and the elementary schools of the state.

Miss McMahon, who was a fellow faculty member, described her as a gentle, unassuming, forceful woman who was esteemed and loved by faculty and students. Mrs. Henrietta Calvin, Miss Ada Field, and Miss Catharine Mulligan also spoke briefly of her contributions to home economics and her devotion to duty. A telegram from Miss Carrie Alberta Lyford, an intimate friend of Miss Patterson, emphasized the loveliness of her character and the loss which the cause of home economics has sustained in her death.

FOR THE HOMEMAKER

NEW YORK COMMUNITY CENTERS

KATHERINE GLOVER

New York City went community canning last summer. It went community canning on a scale that broke all records. Eleven thousand women left their individual cook stoves, tied on Hoover aprons, rolled up their sleeves, and bending over a common coöperative pot put up 31,149 quarts of fruits and vegetables.

They proved that the spirit of neighborliness, of "get together" is just as strong in women who are shut off from each other's interests by the artificial barriers of apartment walls as in those whose chrysanthemum beds run over into the cosmos of their next-door neighbor.

The crust of reserve broke down under the common desire to provision a family and save food in war times. And so bound together were many of the women through this community venture that community canning will merge into community cooking through the winter. But that is getting ahead of the story.

The canning centers of New York were first suggested by the Bureau of Conservation of the Federal Food Board and New York State Food Commission, but in their working out they enlisted the coöperation also of the Board of Education, the Food Council of Greater New York, and the Department of Public Markets.

The kitchens of sixteen public schools of the city were thrown open as canning centers and the Board of Education provided a teacher for each center, furnished janitor service and gas, and appropriated \$1000 for supplies. The work was organized and superintended by the members of the Bureau of Conservation staff. The Bureau furnished funds to buy the jars at wholesale, and to provide all necessary additional equipment.

Members of the Food Council took the responsibility of securing and maintaining the attendance of the centers, keeping accounts and records, and generally served as valuable aides to the teachers in charge.

To the Department of Public Markets fell the duty of providing the materials for canning. The original plan was to centralize the buying for all the kitchens, but this was not accomplished for lack of adequate delivery service. Arrangements were made with neighborhood dealers to furnish material at the lowest possible cost. In some cases, valiant aides of the Food Council regularly went to big market centers at four o'clock on the mornings when the canning centers were open, in order to cull the best offerings for canning.

In some of the outlying centers women brought their own materials or else purchased them themselves and brought them to the center, but only a negligible number did this. Most of them were only too glad to have the benefit of large quantity buying.

The women registered a week in advance for the canning privilege and were usually told what vegetable and fruit they might expect to can. Of course if market conditions were unfavorable for the products planned something else was substituted; but there was little dissatisfaction on this score.

The work in the centers was done in community fashion. Everybody worked together, on apportioned tasks, and at the end the out-put was divided. Only when a woman brought her own materials did she do her work individually. The actual cost of the food materials purchased was divided by the number of jars yielded, and each woman paid for the contents of her jars. If sugar was used she paid in addition one cent per quart for sweetening.

Figuring on the market price of canned goods, it was estimated at the end of the season that on the 5,000 quarts of beans put up at the centers there was a saving of from \$1100 to \$1700; and on the peaches and plums canned, a saving of \$1400 to \$2500. All the materials put up represented a saving of between \$4000 and \$5000, a significant object lesson in thrift.

It is not the tangible results of the work, however, which tell the real story. For every jar put up in the kitchen, several more were put up in the homes of those who attended, by women who for the most part had done little canning before or perhaps had done it in haphazard fashion. It was the educational side of the work, the lesson of working side by side at a common task with a standard to measure up to that left its mark on the women who came to the centers. The monotony of working alone, the lack of stimulus of competition or the reward of a competent judgment when the task is over, vanished in

the community center. Social barriers, too, crumbled under the democratic contacts and the eagerness of women to do well the task at hand.

One incident proves the spirit of thrift that sprang up and thrived in the centers. One group of women who had been canning left their peach peelings and their corn syrup cans in plain sight of the next group who came in to can. One of the women in the new group said: "With those peelings and the syrup scraped from the cans, I believe we could make a good jam."

Into the pot went peelings and rescued syrup. The product was something to be proud of. But when group No. 1 returned to the kitchen and saw it they had a feeling of proprietorship. Were not their peelings and their syrup used?

The decision called for the fine tact of the teacher, but it is needless to say that the judgment was in favor of the group who thought of rescuing the peelings.

The feeling of comradeship which the centers developed and the eagerness of the women to go on doing things together and to learn the best way of doing them is responsible for the merging of at least three of the centers into permanent cooking centers in three settlements in crowded districts, instead of in the schools.

Three times a week these are open for coöperative cooking, or, in reality, for a cooking lesson under one of the demonstrators of the Bureau of Conservation, differing from the ordinary lesson in that at its close Mrs. Smith will take her wonderfully evolved stew or her loaf of Victorybread home for the family, as part of their dinner. These coöperative centers in this way will not only teach conservation cooking but will furnish a channel for the expression of the community spirit awakened in the women.

A RED CROSS CHRISTMAS

This is the age of fairy tales come true.

We have been reading—and doubting—for centuries how the magic knight flew to fight the dragon. And the names of Guynemer and Lufberry—immortal and beloved—forever prove their truth. We have read, with many a grain of salt, how the good fairy king and queen

flew over waters wide to visit friendly monarchs. But since King Albert and Queen Elizabeth went from Belgium to England through the air those who still remain skeptical of the old lore simply go on the list as blind or mediaeval. As for the invisible robe that even our children no longer credit, whole army transports have been moved under it, in plain sight of the enemy but unseen by him.

It is all so wonderful that we have pretty well lost sight of the magic qualities of a less tangible though no less real phase of American war-work—the transportation across the ocean of mercy, motherhood, the spirit of home.

That is the truest magic of all, that a spiritual thing could be carried across a sea and become a mighty power on the very scene of war.

How hopelessly, for all her bravery, the mother of old sent her son to battle. Wounds or imprisonment were only part of her fears. He had enemies in camp, as well as across the battle line, and they were improper living, physical and moral, loneliness, disease, bad food, neglect. And it was explained to the mother that that was war, and that nothing else could be expected.

But in this war American motherhood has gone to the front with the boy, in spite of the fact that mothers were forbidden the very continent on whose ground their sons fought, and has fed, clothed, tended, nursed, befriended each of them.

The Red Cross is grateful that it has been an instrument in this latter day magic. But it recognizes itself as merely the instrument, and knows that the magic itself had its origin in the heart and will of the American people.

The Red Cross is conducting a Christmas Roll Call, and is asking that the response to it be unanimous. It is doing this because it knows that it can go only as far as the American people send it, have mercy on as many as they bid, express the spirit they give it to express, and build its ideals as high as they aspire. If all of America is not behind the Red Cross then by so much must it fall short of the goal it desires to reach.

The magic that gave men wings and that concealed armies had for its highest purpose the slaying of the great red dragon of this modern world. The magic that made tenderness and love live on the battle field, in canteen and rest house and hospital goes even farther in its aspirations. The Red Cross wants the American people to say the word that shall not only enable it to root out every whit of needless

suffering left in the trail of the European war, but that shall bid it turn its mobilized forces against the foe at home—against the useless sickness and disease, against the remediable conditions that assail the life of the home as mercilessly as ever German hordes assailed the life of nations.

Surely nothing can compensate us for this war but that we should be able to write at the end of it "And the wicked wizard was destroyed and all the people lived happily for ever after." If, because we have put in motion huge forces to safeguard the soldiers who fought in France as soldiers were never safeguarded before, we learn to make equally mighty efforts against social distress and enemies to health here, we shall have won a double victory.

This is the Christmas season and the war is over. Dare we unite in the wish "Peace on earth, good will to men," with anything less than our whole hearts? And that means that all the magic of this magic age shall now be brought to bear on conquering misery's own self here, as well as its agents abroad. It is for this the Red Cross asks all America to enlist as its members, for only in this way will it have back of it the whole of that spirit that made the unconditional surrender of armed wrong inevitable.

A COMPARISON OF THE USE OF BAKER'S AND HOMEMADE BREAD AMONG DIFFERENT NATIONALITIES IN THE UNITED STATES

The question as to the extent to which baker's bread is used in our larger cities and whether the use of baker's bread is greater among certain nationalities than others has been for a long time a subject of interest to the United States Food Administration, and the following facts have been gathered.

An inquiry, first taken up with teachers of home economics in New York City, met with such a cordial response and resulted in such interesting data that questionnaires were immediately sent to 63 other cities. 36 cities reported; the remaining 27 received the questionnaires after the close of the school term.

In New York City 11 nationalities with a total of 25,639 families are represented in the data given; the Russian Jews, Americans, Italians,

and Germans predominating. English, Irish, Scandinavians, Polish, Austrians, Hungarians, and negroes are also included. Of the number reporting, 6 per cent bake all their bread, 54 per cent buy all their bread, and 40 per cent buy only a part of their bread. Assuming that in the latter class of families, one-half of the bread is bought and one-half is homemade, it is estimated that 26 per cent of the bread used in these families is homemade compared with 74 per cent of baker's bread. To put it in another way, if the number of families baking part of their bread is divided equally between the families that bake all their bread and those that buy all their bread, it is seen that the number of families of all nationalities who buy their bread is far greater than the number who bake their bread. Among the families of each nationality the percentage of those who buy is always over 50 per cent. With the exception of the English and Polish families the percentage runs as high as from 71 to 79. In detail Americans buy 78 per cent of their bread, English 63 per cent, Russian Jews 72 per cent, Italians 75 per cent, Scandinavians 74 per cent, Irish 79 per cent, Germans 76 per cent, Polish 59 per cent, Austrians and Hungarians 72 per cent, colored 71 per cent.

There are, however, 5 cities reporting where the greater number of families bake their bread, namely: Boston, Mass.; Duluth, Minn.; Grand Rapids, Mich.; Meriden, Conn.; and Richmond, Va. Boston buying 46 per cent, Duluth 31 per cent, Grand Rapids 38 per cent, Meriden 47 per cent, Richmond 35 per cent. There are other cities in which only slightly more than half of the families reported buy their bread. But of the total number of families for all the cities, 66 per cent buy their bread while 34 per cent bake it at home.

Of the total number of families reporting in all the cities, 37 per cent are American. The percentage of Americans using baker's bread differs only by 1 per cent from the percentage of families of all nationalities in all the cities who use baker's bread, Americans buying 66 per cent; other nationalities 65 per cent.

Among the foreign population the Russian Jews predominate and show the highest percentage of families that buy their bread, 69 per cent. Among the Germans 68 per cent buy their bread, and of the Italians and Irish 64 per cent. Among the negroes, however, the percentage of those that buy their bread is 51 against 49 that bake their bread. Of the following nationalities taken together Austrians and

Hungarians, Scandinavians, English, Polish, Bohemian, French, Armenian, and Dutch, 61 per cent bake their bread.

Of American families only 15 per cent are reported as using wholly homemade bread, while 48 per cent use baker's bread entirely, and 37 per cent use both.

It would be interesting to compare the different results if the data were gathered from country districts or small towns.

CHILDREN'S HEALTH CODE

AIR	Inside air is never so good as that of <i>outdoors</i> . Be in the open air every minute that you can.
SUNSHINE	Sunshine stops the growth of the germs of sickness. Let the sun shine freely into your home and upon your clothing.
SLEEP	Children need at least 10 hours' sleep each night. Sleep with the bedroom window open top and bottom.
BATHING	Bathe at least twice a week, better once a day.
PLAY	Play every day, winter as well as summer, and always outdoors if you can.
MILK	Milk is the very best food for growing children. Drink three or four glasses of it every day.
DRESS	Dress comfortably and lightly. Keep warm by exercise, play, and deep breathing.
WATER	Drink three or four glasses of water every day.
FOOD	Wash your hands always before eating. Eat slowly and chew all your food well.
MOUTH	Keep these clean, as they are the windows and doors
TEETH	for disease germs; use tooth brush and handkerchiefs
NOSE	often.
ALCOHOL	Alcohol and tobacco stop your full growth and prevent
TOBACCO	your being swift and sure.

—*Pittsburgh Public Schools, Department of Hygiene.*

EDITORIAL

Our New Program. A difficult program lies before the home economics teacher for the coming year. She must teach food conservation, not by the substitution of one article for another, but by showing how to use only the necessary amount of food. She must teach clothing thrift when the wool shortage has ceased. She must teach true economy when every advertiser is urging his goods upon a too willing public. She must teach economy of labor when the fear of unemployment is before many.

Yet in some ways her task is easy. She has an audience who have been practicing thrift; who have become accustomed to the elimination of waste, to the salvage of all material; who have learned to judge between values; who have become open minded. Those who have changed their habits of eating, of clothing, of spending in order to win the war are prepared to acquire new knowledge, and to make permanent the best of the lessons they have learned. The opportunity lies before us to exercise leadership in a way that we have never done before. If we can gain a new vision of the needs of the world, a new purpose to serve those needs, a new inspiration in fulfilling this purpose, we shall be able to make a real contribution toward the reconstruction of the world.

Home Economics Acquitted. Home economics courses and teachers have been criticized from time to time as too theoretical—too lacking in really practical knowledge—too “scientific,” with the word used as a term of reproach. The work done during the influenza epidemic should certainly free them forever from such a charge. The article published in this number telling what one department did is only one out of hundreds that could have been written. Heads of Home Economics Departments not only organized and directed relief work, but with their own hands prepared food for emergency hospitals, the student army training corps, and the families and individuals who would have been helpless without their aid. Dr. Amy Daniels left her important research work in order to cook for 400. Edna White, President of the

American Home Economics Association, whose organizing ability and remarkable work in Ohio have established her leadership, took personal charge of the relief kitchen at Ohio State. These instances might be multiplied over and over again.

Physicians and nurses have gained a new respect for departments that can direct research, and that can also "go into the kitchen" for a big piece of philanthropic work.

THE QUESTION BOX

Question: Into what does milk decompose on being heated to 56°C. or over? Why is boiled milk constipating? Are both classes of so-called vitamines affected by heat? If so to what degree and at what temperature?

Answer: It has been shown by several investigators that volatile sulphides and ammonia in small amounts are liberated when milk is heated. The liberation of these substances, however, apparently does not detract from the nutritive value of the milk.

There is no adequate explanation of the cause of the constipating effects of boiled milk. It has recently been shown that the amount of citric acid in cow's milk is not materially changed during heating, so that the theory held by some, that the constipating effect of boiled milk is due to the smaller amount of citric acid, is no longer tenable; nor does it seem altogether reasonable that constipation may be the result of the finer curd formed during the digestion of boiled milk, for the curd formed during the digestion of human milk and goat's milk is equally fine.

Most investigators agree that the anti-polyneuritic vitamine (water-soluble B.) is not materially affected at the boiling temperature in neutral or acid media. Carefully controlled experiments suggest that at temperatures over 100°C. there may be some destruction, as well as in an alkaline medium at 100°C. Chick and Hume report that exposure for 40 minutes to a temperature of about 113° C. decreases the efficiency of the water-soluble vitamine about one-half as compared with the unheated control; exposure for two hours at 118°C.-124°C. reduces its power to less than one-fourth. Other investigators, on the other hand,

have been able to get normal growth in animals on foods in which the only source of the vitamine was from foods heated to 120°C. for one and one-quarter hours.

The fat-soluble vitamine, associated particularly with milk fat and green leaves, appears to be materially affected by long continued treatment at 100°C. Butter fat heated for four hours at 100°C. produced no growth in rats fed rations containing this as the sole source, whereas other rats fed a similar ration containing unheated butter fat grew normally.

Rettger: *Amer. Jour. Physiol.*, 6, 1902, 450.

Schulz: *Ztschr. f. physiol. Chem.*, 25, 1898, 16.

Hogan: *Jour. Biol. Chem.*, 30, 1917, 115.

Sommer, and Hart: *Jour. Biol. Chem.*, 35, 313.

Chick and Hume: *Proceedings of the Royal Society. B.* 1917, 90, 60.

McCollum, Simmonds, and Pitz: *Jour. Biol. Chem.*, 29, 1917, 521.

Steenbock, Boutwell, and Kent: *Jour. Biol. Chem.*, 35, 1918, 517.

Recent investigations point to the conclusion that there is also an antineuritic vitamine, found in raw vegetables and fruits, especially the citrus fruits. This appears to be materially affected by drying, boiling at high temperatures, or long continued boiling at 100°C., and by dilute alkalis.

Experimental Scurvy of the Guinea Pig in Relation to Diet. Cohen and Mendel. *Jour. Biol. Chem.*, 35, 1918, 425.

The Antiscorbutic Properties of Dessicated and Cooked Vegetables. Givens and Cohen. *Jour. Biol. Chem.*, 36, 1918, 127.

The Scurvy of Guinea Pigs. The Experimental Dietary. Hess and Unger. *Jour. Biol. Chem.*, 35, 1918, 479.

The Scurvy of Guinea Pigs. Experiments on the Effect of the Addition of Fruits and Vegetables to the Dietary. Hess and Unger. *Jour. Biol. Chem.*, 35, 1918, 487.

The Antiscorbutic Value of Cow's Milk. Chick and Hume. *Biochem. Jour.*, 12, 1918, 121.

The Differential Behavior of the Antineuritic and Antiscorbutic Factors toward Adsorbents. Harden and Zilva. *Biochem. Jour.*, 12, 1918, 93.

The Susceptibility of the Antiscorbutic Principle to Alkalinity. Harden and Zilva. *Lancet*, Sept. 7, 1918.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Food: Its Composition and Preparation. By MARY T. DOWD AND JEAN D. JAMESON. New York: John Wiley and Sons, Inc., 1918, pp. 173. \$1.25.

The authors of this "text book for classes in household science" have stated their aim in writing it in the following paragraph in the preface: "In presenting this book for the consideration of the public, the authors are well aware of the present very general practice of furnishing all necessary instructions and theory to domestic science classes through the medium of notes taken by the students. Indeed it is to the conviction, resulting from long experience with the problem, of the futility and inefficiency of this practice that the book owes its origin. Much of the time thus spent by the teacher in dictating, and by the student in writing, can and ought to be saved for more profitable use."

The teacher of home economics will recognize in the book much of the material which she has used with her classes in the way described above and will welcome it in this available form. The long experience of the authors has enabled them to select wisely the material essential to the various phases of food preparation. They have organized it well, and have subdivided it in such a way as to render it very accessible for class discussion. It is divided into paragraphs numbered consecutively throughout the book, as well as into chapters dealing with the various foodstuffs and the composition and preparation of foods most representative of them.

Although the reader may be perplexed by the absence of a chapter on protein in

the table of contents, inasmuch as the other foodstuffs are all represented in the chapter headings, it will readily be seen that the chapters which discuss milk, eggs, meats, poultry and game, and fish give ample consideration to this important topic.

In the sequence of chapters the authors have made no attempt to designate an order of procedure which should be followed by the teacher employing it as a text. It is presented in a logical sequence; but it will serve its best purpose in the present day teaching of foods if the teacher will rearrange the material in the order which meets the demands of her own class.

The experiments and the suggestions for laboratory practice at the close of the chapters are very helpful especially to the beginning teacher, though no attempt has been made to exhaust the possibilities.

The book is not a cook book. It contains no recipes because the authors have found that teachers of food preparation prefer to use those which they have found satisfactory in their own experience.

Perhaps the unique feature of the book is the discriminating choice of material and the clear and definite statement of it. It contains an excellent glossary, and the illustrations are well chosen and helpful.

"Food: Its Composition and its Preparation" is well adapted to the work of home economics classes in high school, either as a reference book, or as a supplementary text. It is also valuable for women's clubs and normal school classes treating the subject in its elementary phases.

CORA M. WINCHELL,
Teachers College, N. Y. City.

Food for the Sick. By SOLOMON STROUSE and MAUD A. PERRY, Philadelphia: W. B. Saunders Co., 1917, pp. 270. \$1.50.

Although there are numerous books on dietetics, most of them being written especially for the physician or the nurse, this volume seems to meet a need not previously filled.

This book, intended for the physician and patient, is sufficiently clear to meet the needs of the laity and yet sufficiently comprehensive to meet the needs of the busy practitioner who needs a practical guide book for imparting instructions to patients. It is also equally valuable to the nurse and the dietitian.

The authors are well prepared to handle the subject, as both are connected with the staff of the Michael Reese Hospital, Chicago, Dr. Strouse being associate attending physician and Miss Perry the dietitian. They believe that the patient should be instructed in the principles underlying the treatment of his case, thus becoming an assistant to the doctor, rather than merely a blind follower.

Following a chapter on Food and Its Uses are treatises on various diseases which yield most readily to dietetic treatment. These include chapters on diabetes mellitus, gout, diseases of the kidney, diseases of the heart, diseases of the liver, diseases of the respiratory system, diseases of the skin, fevers, obesity, anaemia, scurvy, and goiter. The symptoms and causes, as well as the dietetic treatment are carefully outlined. Where there are differences in the treatment practiced by reputable physicians, these different methods are given with the reasons, leaving it to the physician to choose his own method in prescribing to his patient.

The book represents the 'latest word' in dietetic treatment of disease, although the chapter on Food and Its Uses does omit the latest findings in foods, i.e., vitamins. There are a few statements with which we would differ, but on the whole the book is so well written, and the subjects so well handled, that we would heartily recommend it to those interested in dietetics from a teaching or a practical standpoint.

LENNA F. COOPER.

Cookery Under Rations. By M. M. MITCHELL. New York and London: Longmans, Green & Co., 1918, pp. 65. \$0.75.

This pamphlet containing 200 recipes is interesting in comparison with the conservation cook books issued in this country.

The suggestions in the introduction for economy in cookery are most of them familiar to us, though in slightly different form. A few, such as the Pot Oven made from the Irish Cooking Pot, are particularly interesting in showing what can be done when there is so serious a shortage of fuel that it must be saved in every possible way.

Directions for increasing the quantity of margarine or butter for table use by beating in milk cooked with flour, those for using bacon rind and cheese rind, and for using potato and tapioca in the "fatless pastry rules" given later in the book emphasize the fact of the shortage of fat in England.

The meat recipes are headed with "3 to 6 coupons required" or " $\frac{1}{2}$ coupon required." Everything is saved; even the skins from boiled potatoes are put into the soup pot. Often a recipe gives the direction to add a little oil or fat, "if it can be spared."

The recipes, like those in most English cookery books, are given by weight—why is any suggestion of this kind considered so impractical in this country?

The American teacher or housekeeper might find a number of suggestions in this little book, especially for meat-saving and vegetable dishes.

The work claims only to be a cookery book, so it is not surprising to find some misstatements when it deals with dietetic problems.

Constructive Sewing. Books II, III and IV. By MARY E. FULLER. Indianapolis: Industrial Book and Equipment Company. (The 1913 edition combines books I and II into volume I, and books III and IV into volume II. Price, 80 cents per volume.)

The first book of this series was reviewed in the March, 1917, JOURNAL.

In the three additional books Miss Fuller has given a comprehensive course in sewing

adapted to girls of high school age. The author has continued to present throughout the series much valuable subject matter beside the technical sewing. Book II contains a number of drafts of patterns for garments, rather more than the average girl in high school should take time to learn when other studies measure relatively of greater value. However, the teacher might select from those presented certain drafts of value to her particular group. Crocheting and knitting are interesting features of Book III. Book IV introduces the pupil to costume design, embroidery, and the infants' layette in addition to the usual dressmaking and millinery found in most high school text books.

Miss Fuller has succeeded in presenting the subject matter in a natural way, and one reads the books with a feeling that she has made the subject much less stereotyped and far more interesting than most books which fall in this group.

ANNA M. COOLEY,
Teachers College, N. Y. City.

Welfare and Housing. By J. E. HUTTON.
New York: Longmans, Green and Company, 1918, pp. VIII + 192, pls. 8, figs. 2.

This book, based upon the practical experience of a man who for three years has been engaged in coping with the problems attendant upon the housing and feeding of many thousands of munitions workers of the Vickers factories (England), gives many points of interest to home economics workers.

In stating his purpose in publishing this book the author says, "It has been pointed out to me in various influential quarters, that a useful purpose would be served if I described in practical and categorical form the methods that are employed at the numerous hostels and canteens which have been created during the war period in connection with the Vickers factories." Nothing has hitherto been published in the way of data as to practical working details and the cost of housing, catering, and other necessities of the time. Two chapters, one on catering and one on the canteen are of especial interest at this time since so many home economics

workers have undertaken the management of such places. The one on catering gives valuable hints as to detail, management, and methods of accounting. Some sample dietaries and menus are also given.

The management of canteens is dealt with in a separate chapter. Points on the structure and equipment of canteens are discussed. Some sample menus of the food served at the Vickers canteen are given.

Transactions of the Eighth Annual Meeting of the American Association for the Study and Prevention of Infant Mortality. Published by the American Association for the Study and Prevention of Infant Mortality, 1211 Cathedral Street, Baltimore, Md., 1918, pp. 327. \$3.00 plus postage.

The Proceedings are divided into four parts, representing the four sessions. The papers, discussions, and reports include the following subjects: War service for the prevention of infant mortality; Red Cross child welfare work in France; Care of women during pregnancy and labor in England, France, and Germany; Obstetrics and Pediatrics—prenatal care, coöperation of obstetrician and pediatrician, care and diseases of the new-born, care of children of pre-school age; Eugenics—the effect of venereal diseases on infant mortality, venereal disease and marriage, prevention of venereal disease as a war measure; Vital and Social Statistics—birth registration, registration and reporting of still births; Progress of infant and maternal welfare work in rural communities; Public school education for the prevention of infant mortality; Red Cross Home Service Institutes; Town and Country Nursing Service; Methods of financing infant welfare activities.

"The Education of College and University Women for Giving Instruction in the Care of Infants, Children, and Mothers," by Alice Ravenhill, and "Extension Courses in Public Schools for Adult Women in the Care and Feeding of Children," by Mary H. Mayer, appear under the section on Public School Education for the Prevention of Infant Mortality.

PAMPHLETS RECEIVED

Issued by the United States Food Administration:

Universal Victory Bread. September, 1918.

Preserving Vegetables by Salting, Drying, and Storing. September, 1918.

Issued by the U. S. Department of Labor, Children's Bureau:

The Public Health Nurse. Children's Year Leaflet No. 6, Bureau Publication No. 47.

Issued by the Department of the Interior, Bureau of Education, in Coöperation with the United States Food Administration:

Lessons in Community and National Life. Series A, for the upper classes of the high school; B, for first class high school and upper grades elementary school; C, for the intermediate grades elementary school.

Issued by the United States Department of Agriculture:

Digestibility of Protein Supplied by Soy-Bean and Peanut Press-Cake Flours. Bulletin No. 717.

Standards for Milled Rice. Markets Doc. 15.

Issued by the United States Public Health Service:

Dried Milk Powder. Reprint No. 473 from the Public Health Reports.

Epidemic Influenza (Spanish Influenza). Supplement No. 33 to the Public Health Reports. "Spanish Influenza," "Three-Day Fever," "The Flu." Supplement No. 34 to the Public Health Reports.

Malaria Control. Reprint No. 476 from the Public Health Reports.

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Food Dept. Special Bulletin, Vol. V, No. 4, 1918, Agricultural Experiment Station, Agricultural College, N. D. (Contains article on "Shall We Eat Whole Wheat Bread?" and one on "Softening Hard Waters.")

Home Curing of Pork. Bulletin No. 11, Connecticut Agricultural College Extension Service. *The Commonwealth.* Vol. 5, No. 8. Massachusetts State Dept. of Health. (Contains articles on Child Care.)

Health News. Public Health Nursing number. August, 1918, Bulletin, New York State Department of Health. (September number contains articles on Saving Babies, Children's Year, etc.)

Evening Industrial Schools. Bulletin No. 18, Trade and Industrial Series No. 2. Federal Board for Vocational Education, Washington.

Vocational Recreation in Indiana, 1916. Vol. III, No. 5, Bulletin of the Extension Division, Indiana University, Bloomington.

War and Family Solidarity. Publication C. O. 54, Russell Sage Foundation, New York City. Price 5 cents.

War-Time Lessons for Schools. Vol. XIV, No. 5, The Hampton Bulletin, The Hampton Normal and Agricultural Institute, Hampton, Va.

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The Efficiency of Maize Protein in Adult Human Nutrition. H. C. Sherman and J. C. Winters, *Jour. Biol. Chem.*, 35 (1918), pp. 301-311. Report, including six tables, of experiments where maize was substituted for wheat in the dietary, the maize representing the main part of the food taken.

The Dietary Qualities of Barley. H. Steenbock, Hazel E. Kent, and J. C. Baker, *Jour. Biol. Chem.*, 35 (1918), pp. 61-75. Report of feeding experiments with rats to determine nutritive properties of the barley kernel—20 charts.

Free Lactic Acid in Sour Milk. L. L. Van Slyke, and J. C. Baker, *Jour. Biol. Chem.*, 35 (1918), pp. 147-178. Technical paper dealing with the degree of acidity developing in sour milk, and the state in which lactic acid exists.

Effect of Heat on the Citric Acid Content of Milk. Isolation of Citric Acid from Milk. H. H. Sommers, and E. B. Hart, *Jour. Biol. Chem.* 35 (1918), pp. 313-318. A study to determine the changes possibly caused in citric acid of milk by heating, which might have a bearing on its anti-scorbutic properties.

Fat Soluble Vitamine. H. Steenbock, P. W. Bontwell, and Hazel E. Kent, *Jour. Biol. Chem.*, 35 (1918), pp. 517-526. A study of the stability of the fat soluble vitamine.

The Scurvy of Guinea Pigs. I. Experimental Diets. II. Experiments on the Effect of the Addition of Fruits and Vegetables to the Dietary. A. F. Hess, and L. J. Unger, *Jour. Biol. Chem.*, 35 (1918), pp. 479-496. A study of anti-scorbutic properties of foods which have been subjected to various kinds of treatment.

Experimental Scurvy of the Guinea Pig in Relation to the Diet. B. Cohen and L. B. Mendel, *Jour. Biol. Chem.*, 35 (1918), pp. 425-453. A study to ascertain whether experimental scurvy may be produced at will in the guinea pig, and to investigate further some of the dietary features of the problem.

The Food Value of Eulachon. M. R. Daughters, *Jour. Biol. Chem.*, 35 (1918), pp. 297-299. Report of analyses of an edible fish resembling smelt which is found in marine waters along the Pacific coast.

Experiments on the Utilization of Nitrogen, Calcium, and Magnesium in Diets Containing Carrots and Spinach. H. B. McClugage, and L. B. Mendel, *Jour. Biol. Chem.*, 35 (1918), pp. 353-366. A contribution to our general knowledge of availability of nitrogen and salts through studies of two foods.

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 A War Home in War Times. *House Beau.* Sept.
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 A Public School Conducted Picture Show for Rural Recreation and Education. B. A. Auchinbaugh, *Educ. Admin. and Supervision*, May.
 The State Normal School and the Problem of Child Health. W. S. Small, *Educ. Admin. and Supervision*, June.
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 Getting a Good Start in Sewing. Janet Cation, *Indus. Arts Mag.*, Sept.
 The War Garden Movement. R. H. Wilson, *Educ. Admin. and Supervision*, June.

NEWS FROM THE FIELD

In accordance with its custom the **American Home Economics Association** will hold a meeting in Chicago in connection with the Division of Superintendence of the N. E. A. There will be two double sessions February 27 and 28. The meeting of the Council will be held on February 26. Mrs. Calvin, the chairman of the program committee of the Association, is planning that the program shall be especially related to the work of the public schools. The headquarters of the Association will be The Congress Hotel, the headquarters of the N. E. A.

Pratt Institute School of Household Science and Arts had to move half its student quarters on a few days' notice in September in order that the Household Arts building might be made into barracks for the S. A. T. C. None of the teacher training work was affected, but all the trade classes were moved. The trade dress-making was given quarters in large adjoining rooms formerly used for architectural drawing. These rooms are divided only by partitions made of lockers, and doorways are without doors. The lighting is excellent, and the rooms are much more like trade quarters than the former rooms, which were a heritage from the discontinued high school. The inconveniences of administration are more than met by the better conditions for trade work.

Because of the heavy demand for institutional workers, Pratt Institute will start a new class in January, 1919. Classes ordinarily begin in September only. The School of Household Science and Arts like all other schools giving institutional training, finds it impossible to fill half of the positions that come to it. Members of this January class can take the three months probationary work in an institution in the

summer, completing the school work in December, 1919.

The State Leaders of Home Demonstration Agents, Office of Extension Work, South, are to meet in Washington, January 2 to 7, 1919.

The School of Household Arts of the University of Cincinnati, is now reorganized to comply with the requirements for the training of vocational teachers in home economics.

With this end in view it now has a staff of instructors which include the following: Grace I. Williams, B.S., A.M. (Columbia), Assistant Professor of Foods and Nutrition; Helen Hay Halm, B.S. (Columbia), Assistant Professor of Domestic Art; Grace Gordon Hood, B.S., A.M. (Columbia), Assistant Professor of Household Arts Education; Jane Cape, B.S. (Wisconsin), Instructor in Dietetics; Leonora Neuffer, Ph.D. (University of Cincinnati), Instructor in Chemistry.

The School is looking forward to additional members to the staff who will take charge of the practice teaching and institutional management.

Work in Some Southern Colleges. At the Florida State College for Women special courses in home economics have been given ever since the declaration of war for all non-home economics students who wished to take lessons in food conservation and production. Besides this a conservation short course was given to the women of the state and representatives from 35 of the 55 counties were present. In June, 1918, a short course for country girls was held. Forty-two girls representing as many counties were present. In Septem-

ber, 1918, a course called The War Work College for Women was held at the same time as the meeting of the Home Demonstration Agents. This was remarkably successful.

A successful War College was also held at the University of Texas.

The University of Georgia organized a department of Home Economics in 1918, with Miss Mary Creswell in charge.

At the Annual Meeting of the District of Columbia Home Economics Association the following officers were unanimously reelected: President, Miss Emma S. Jacobs; Vice-president, Mrs. H. P. Springer; Corresponding Secretary, Miss Ellen Marshall Rugg; Recording Secretary, Miss Ester Jonas; Treasurer, Miss Elizabeth Bache.

A resolution from the Housekeepers Alliance to the effect that the organizations unite in their public work for the ensuing year, in the interest of efficiency and conservation, was adopted.

The Conservation of Clothing was presented by Mrs. Charlotte White Lee, and was followed by a lively discussion from the floor. Standardization of Women's Clothing was presented in a paper by Miss Ida O'Neal.

Home Economics Club Work in Massachusetts. Massachusetts has had the past season 202 home making club members with a total enrollment of 2,980; of this number 1,506 completed all work, and 39 of the club groups were 100 per cent groups and finished all work required by all members. The club members produced 40,306 loaves of bread, and members of the bread club also made 1,890 garments. Mary McKeon, Wakefield's champion bread club girl, baked 304 loaves of bread.

In the State sewing club work these facts are interesting: The sewing club had 1,653 members; of these 1,448 belonged to the bread clubs also; 1,942 sewing club girls reported that they enlisted and put to work other girls who were not members of their group. Public demonstrations in garment

making and sewing were given by 32 of the girls.

The sewing club girls of Massachusetts prepared and delivered to the American Red Cross 18,297 pieces or garments, at a total cost of \$1,427.91.

Home Demonstration Work in Oregon.

Home cook-stove dryers have come into very general use in home demonstration agent counties in Oregon. In one section dainty boxes of home-dried fruits have been prepared for Christmas gifts, and the children are learning to use the dried fruits instead of candy.

In one county where 710 women enrolled in the classes and clubs organized by the home demonstration agent 233 household account books were placed because of the interest created in thrift and home management.

In another county the women are making homemade driers, homemade fireless cookers, and homemade iceless refrigerators. One woman found that an investment of 50 cents in a dish drainer and wire dish-cloth for pots and pans saved her ten minutes of the time required to do the dishes after each meal, or 30 minutes a day. In a year she figured this time, if accumulated, would give two weeks, of 12 hours a day, leisure. Was the investment worth while?

Miss Louise Caldwell, a member of the Home Economics faculty of Kansas State Agricultural College, died from influenza, October 25, in New York City, while she was there on leave of absence doing graduate work at Columbia University. Mrs. Van Zile writes: "We not only feel keenly our personal loss but also the loss to the Home Economics movement of one who promised to be a distinctive leader. Miss Caldwell was a woman full of life, energy, and determination, was ambitious and of unusual natural ability, and her work on our faculty was a distinct contribution to home economics. She possessed those rare qualities of personality and character as to endear her to all those with whom she was associated."

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